Next Week: CW Hardware Roundup

# COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

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NEWSPAPER

## Another Increase In AT&T Rates Takes Effect

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — A 16% increase in rates for AT&T's dial-up, long-distance Message Toll Service (MTS), an equivalent increase in the phone company's private-line charges, a 10.5% hike in its Wats rates and a 35% decrease in its charges for certain overseas telephone calls became effective June 28.

All four changes essentially reflect an increase from 10.5% to 12.75% in Bell's authorized rate of return, allowed by the Federal Communications Commission (FCC) last April.

On May 14, private-line rates were increased 16.4%; on June 1, the discounts long granted for heavy use of Wats circuits were eliminated, increasing charges for many users by more than 30%. According to one estimate, all these rate changes will add at least $2 billion annually to the charges paid by AT&T customers.

The higher rates were accepted by the FCC after it deferred them from May 14 to July 9 [CW, May 18]. AT&T was told then to supply additional traffic forecasts showing that the higher rates would not exceed the 12.75% rate of return authorized last April.

### Bell's Reply

Bell responded to the commission's request for information early last month [CW, June 8] and asked for a 10.5% increase in Wats rates instead of the 16% originally requested. Bell also asked the FCC to expedite consideration of the proposed tariffs so they could be implemented before July 9.

That's what the commissioners did June 25. They are still not certain, however, that the increases are justified, so they have ordered an investigation that could lead to rate reductions.

However, Bell says it may need further increases because the newly established charges may not produce the full 12.75% rate of return authorized by the commission last April. But all such requests will be deferred until next October, according to Assistant AT&T Vice-President William R. Stump.

*Some Software Also Up*

# IBM Hikes Hardware Prices Again

By Tom Henkel
CW Staff

ARMONK, N.Y. — IBM has increased prices 5% to 15% on most of its major hardware and up to 15% on selected program products and maintenance services. However, some program products were cut by as much as 20%.

The hardware and software price hikes are effective Oct. 1. However, some of the maintenance price hikes are effective immediately.

For most of the hardware hit by increases, the hikes average 5% of purchase price. Rent and lease prices went up an average 7% at the firm's Data Processing Division (DPD), 8% at General Systems Division (GSD) and 10% at Office Products Division (OPD).

OPD's word processor, the Displaywriter, experienced the largest price increase — its lease and rental prices were raised 15% and its purchase price went up 10%.

### Fourth Time

The latest increases mark the fourth time since December 1979 that IBM has announced across-the-board price hikes. IBM has raised prices on most of its hardware 22% to 53% in the past 18 months as part of semiannual pricing reviews. Traditionally, other vendors follow IBM's lead in raising prices.

Major systems affected by the current increases include DPD's current top-of-the-line 3033 processors, which experienced 7% rent and lease increases, but were spared from purchase price increases; most 4300 models, which received across-the-board increases (the 4331-2 was spared); the 8100 line (except the 8140A models); and GSD's Series/1.

Notably spared from any price increases were the newly introduced top-of-the-line DPD processor, the 3081; the two smaller models of the System/38 line; and the troubled 2G-byte 3380 disk drive, on which IBM recently announced a delay in first shipments because of unspecified problems in the unit's disk head assembly.

At DPD, major items that were not affected by purchase, lease or rental increases, besides the 3081, were the 4331-2 and 8140A processors; the 3042 (an attached processor for the 3033); the 3310 and 3380 disk drives; 3203 and 3211 printers; 3410, 3411 and 3420 tape drives; the controller for the 3420; the 3803, 3704 and 3705 communications controllers; the 3760 key entry unit; the 3791 controller and 3792 auxilliary controller; the 3793 keyboard printer; the 3800 laser printer; the 3830 mass storage unit;

(Continued on Page 4)

# Post Office Begins Releasing Tapes With Nine-Digit Zips

By Jake Kirchner
CW Washington Bureau

WASHINGTON, D.C. — The U.S. Postal Service (USPS) has begun releasing computer tapes of its nine-digit Zip Code data base to organizations wanting to convert their mailing address files to the longer Zip Codes.

The USPS action immediately followed a June 23 Office of Management and Budget (OMB) letter to Postmaster General William F. Bolger indicating the administration's final approval of the "Zip + 4" program.

The scheduled June 1 release of the Zip Code tapes had been delayed while USPS provided OMB additional information on the postal automation [CW, June 8].

There is still considerable opposition to the program in Congress, which may yet act to limit the program's implementation. However, the White House has now signed off on the program.

### OMB Letter

In the June 23 letter, James C. Miller III, OMB administrator for information and regulatory affairs, told Bolger, "We have reviewed your revised regulatory impact analysis and on that basis have concluded that your Zip Code + 4 rule is in accord with the President's regulatory principles."

USPS published in last Monday's *Federal Register* its final rule on the Zip Code expansion program, emphasizing it is voluntary and aimed initially at large-volume mailers.

(Continued on Page 5)

# South Dakota Breaks 370 Lease, Claims 1976 Contract Illegal

By Bill Laberis
CW Staff

PIERRE, S.D. — The state of South Dakota has broken a $2.5 million computer lease, claiming the contract it signed in 1976 and honored the past five years was an illegal one.

In addition, Gov. William Janklow said the state will sue the lease holder for the more than $1.8 million in rent it has paid out since 1976 for an IBM 370/158, a system whose present market value is about $150,000.

But American Re-Insurance of Delaware, the lease holder, plans to pursue a damage claim in a U.S. appellate court here, charging essentially that the state is simply trying to wriggle out of a legal contract for a system whose value has declined tenfold in the last five years.

While drawing applause from some groups, including taxpayer associations, the state's decision to break the lease has been assailed by others as a blow to South Dakota's image and integrity in doing business. The state, however, appears steadfast in its desire to break the lease, despite criticism and the threat of legal action against it.

The state contends that the seven-

(Continued on Page 6)

# Users, DP Agree On Success Keys

By Brad Schultz
CW New York Bureau

CAMBRIDGE, Mass. — MIT researchers have found strong agreement among user managers and DP professionals in U.S. companies on what is critical to DP success and how well their organizations meet various criteria for DP success.

The researchers found this strong agreement in a survey of 1,058 user managers and DP professionals at 19 companies whose annual revenues ranged from less than $100 million to more than $10 billion.

Because the agreement held strong-

(Continued on Page 8)

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# Mainframers Fighting I/O Standards Take Their Case to the Supreme Court

By Jake Kirchner
CW Washington Bureau

WASHINGTON, D.C. — Three major computer mainframers challenging a set of federal I/O interface standards have taken their case to the U.S. Supreme Court.

Control Data Corp., Honeywell, Inc. and Sperry Univac late last month asked the high court to review decisions by lower federal courts that the firms do not have legal standing to ask the courts to overturn the standards.

Burroughs Corp., which had participated in the suits against the government since they were first filed in late 1979, did not join in the petition to the Supreme Court.

A Burroughs spokesman at company headquarters in Detroit said last week that although Burroughs "supports the appeal by the other parties" the firm itself has "nothing further in material arguments to present."

### Follows March 25 Ruling

The Supreme Court petition follows a March 25 ruling by a federal appeals court here upholding an earlier decision that the statutes the Commerce Department used to promulgate the computer standards cannot be invoked by companies challenging the standards [CW, April 6].

The firms contend the standards, developed under a 1965 law regulating federal DP acquisitions and activities, will cause the companies to lose federal contracts unless they spend several years and millions of dollars to bring their equipment into conformance with the standards.

According to the three companies, unless the earlier decision is overruled, "no one will be able to obtain judicial review of the [Commerce] secretary's action."

### Petition's Argument

The petition argues government attorneys and lower court judges acknowledged the standards, based on IBM architecture, will injure the firms' federal marketing activities.

Therefore, the petitioners said, the ruling that the firms cannot challenge the standards "unjustly restricts access to federal courts by persons suffering direct injury as a result of unlawful agency action."

The firms also contend the lower courts' ruling on the test for legal standing does not adhere to previous Supreme Court decisions and are symptomatic of similar rulings of other courts, which, the firms said, are confused and in need of clarification.

The Supreme Court will decide whether to accept the case during its fall session.

# CW Names Whitmarsh Editor to Succeed Lundell

FRAMINGHAM, MASS. — John C. Whitmarsh has been named editor of *Computerworld*, succeeding E. Drake Lundell Jr., who resigned July 1.

Whitmarsh, CW's managing editor since January, joined the paper in April 1979. He has 10 years experience as a business journalist, having held senior editorial positions at three other trade publications before coming to *Computerworld*.

Prior to managing editor, Whitmarsh was senior editor/features at CW, responsible for development of the In Depth section and for the production of the first two *Computerworld Extra!s*.

The winner of two Jesse H. Neal awards for editorial excellence from the American Business Press, Whitmarsh is a graduate of Hobart College and received an M.A. in journalism from Syracuse University.

Lundell started with *Computerworld* in 1969. He served as New York bureau chief, Washington bureau chief and computer industry editor. He was named editor of CW in 1974 and vice-president, editorial, of CW Communications, Inc. in 1979.

Before joining CW, Lundell was editor of *EDP Weekly*, *Peripherals Weekly* and managing editor of *EDP Daily*.

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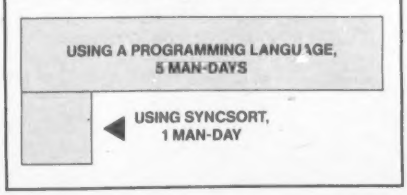
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***Chart of the Month:***

**Programming Time**
**needed for simple applications:**




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# IBM Hikes Hardware, Software, Maintenance

(Continued from Page 1)

3872 and 3874 modems; the 3890 document processor; the 8809 tape drive; and the 3732 text display station.

Major DPD items that face 7% rent and lease increases, but no purchase price increases, incude the 3031, 3032 and all models of the 3033 processor; 370/115, 125, 135, 138, 145, 148, 155, 158, 165 and 168; 3330, 3333, 3340, 3344, 3345 and 3350 disk drives; the 3272 and 3274 controllers; the 3273 CRT terminal; the 3276, 3277, 3278 and 3279 controllers/display units; the 3830 storage controller; the 3601 and 3602 financial controllers; the 3651 storage controller; and the 3657 ticket unit.

A spokesman at GSD said major items at that division excluded from rent and lease increases include the System/38 models 3 and 4 and the 5219 and 5224 printers. Lease prices on the System/38 Model 5 were increased.

Among the GSD products excluded from purchase price increases were all System/34 and System/38 models, the 5251 and 5252 CRT terminals and the 5224 and 5256 printers.

All rent and lease prices on OPD products were increased 10%. Exceptions included all copiers, the 6670 information display unit and the Displaywriter. OPD purchase prices were unchanged.

In addition to increases in hardware, IBM raised the monthly fees on most of its major operating systems and program products by 15%, but decreased other prices.

At DPD, MVS-SP, key features for DOS/VSE and the DPPX and DPCX operating systems were increased 15%. Some less significant DPD program products were decreased by as much as 20%; decreased items included some APL program products and assorted utilities.

At GSD, no software was decreased, but some major program products were spared from price increases. All Series/1 programs are exempt from the price increases, as is System/34's main programming language, RPG-II, along with Basic and most other languages, a GSD spokesman said.

Also unaffected was RPG-III, the base language of System/38. However, some System/38 utilities were increased by 10%. Other software was increased by as much as 15%.

### OPD Software Unaffected

An OPD spokesman said software in that division was not affected by the increases.

As an example of the changes in software costs, DPD's MVS-SP JES3 Release 1, which now costs $1,375/mo, will cost $1,580/mo; MVS-SP JES3 Release 2 and 3 now cost $1,800/mo each, but will rise to $2,070/mo; IMS/VS, which now costs $250/mo, will cost $287/mo; and the 8100 operating systems were also increased — DPPX-Base from $181/mo to $208/mo and DPCX from $204/mo to $234/mo.

All three divisions also increased monthly maintenance rates by as much as 15%. Both DPD and GSD increased per-call maintenance rates by 15% and both increased hourly machine service charges by 7% and 8%, respectively.

All three divisions raised the price of education courses and publications by 10%.

The increases for the education courses and publications and per-call maintenance increases are effective immediately, IBM said.

All of the price increases are the result of a normal business review, IBM said, citing the impact of inflation as a major cause for the hikes.

## *GSD Cuts Some Prices For Volume Orders*

ARMONK, N.Y. — While raising prices with one hand, IBM's General Systems Division used the other to cut costs to volume-order customers by announcing a revised discount schedule for the Series/1, 5520 and 5280.

IBM altered two volume discount plans. The Value Procurement Amendment, available to Series/1, 5520 and 5280 customers, was increased on small-volume orders of one to four systems from zero to 15%. Customers ordering five to 19 systems will receive a 10% discount; 20 to 49 systems, a 15% discount; and 50 or more systems, a 20% discount.

In addition, the Value-Added Remarket plan, available only on the Series/1, was increased from 10% to 15% for customers purchasing one to four systems. The discount remains at 10% for purchases in larger quantities.

IBM also lowered the volumes required to take advantage of both discounts, a spokesman said.

# Patco Members Unhappy; Strike Still Held Possible

By Marguerite Zientara
CW Staff

WASHINGTON, D.C. — The threat of a nationwide air traffic controllers strike is not completely over, judging from the overwhelmingly negative reaction from rank-and-file Professional Air Traffic Controllers Organization (Patco) members to the Federal Aviation Administration- Patco tentative contract agreement [CW, June 29].

Although Patco President Robert Poli, who negotiated the contract with Department of Transportation Secretary Drew Lewis, had said he was "pleased" with the pact, Patco members have since been quoted as calling it "pure trash," "garbage" and "an insult to every air traffic controller."

Patco headquarters here has received "literally hundreds of letters, telegrams, mailgrams and phone calls expressing dissatisfaction with the settlement," a union spokeswoman said.

### Outsiders' Prediction

Union officials around the country have predicted that the contract will not be ratified and have claimed that the agreement as it stands would continue the "inherent problems" of inadequate staffing, no provisions for early retirement and only nominal authority to advise the government on new equipment.

Meanwhile, the tentative contract was mailed out to union members last week, along with ballots, which are scheduled to be counted in mid-July. If it is rejected, union leaders are expected to ask Lewis to resume negotiations.

If Lewis were to refuse, or if renewed negotiations resulted in no improvements to Patco's position, "then we will try again to get 80% of the air traffic controllers to agree to go on strike," a union official said.

Lewis remained firm last week in his belief that "it's in [the controllers'] best interest to ratify this contract." He also warned there would be no more money offered controllers if they rejected the tentative pact.

# Graphics Meet Set This Month

ANDOVER, Mass. — A three-day conference on "Business Applications for Computer Graphics" will be held here July 29-31 to bring together users and suppliers to "provide an update on what is now available, how the systems are being used and justified, what's involved in implementing such a system and what's coming up in the near future," according to the Institute for Graphic Communication, Inc., sponsor of the conference.

The chairman of the conference is Carl Machover of Machover Associates Corp., Graphic Communication said.

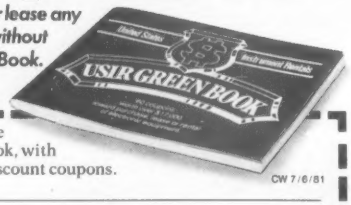
The registration fees for the conference, which will be held at the Andover Inn, are $550 with room and $495 without room, Graphic Communication said.

More information about the conference is available from the Institute for Graphic Communication, Inc., Fourth Floor, 375 Commonwealth Ave., Boston, Mass. 02115.

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# Should You Convert to Nine-Digit Zip?

By Jake Kirchner
CW Washington Bureau

WASHINGTON, D.C. — Announcing its final rule on the Zip +4 program, the Postal Service last week published in the Federal Register the following advice to mailers on whether to convert computerized mailing lists to the longer Zip Codes.

"The voluntary nature of the program leaves to the mailer the decision on whether to convert its address files. Any given mailer will convert to Zip +4 codes if the savings in postage from repeated use of the rate incentive outweighs the cost of conversion . . .

"We estimate that the cost to update a computerized address file will range from one-half cent to one cent per address, based on the current costs of matching mailer address lists against the Carrier Route Information System tapes and estimates received from several large list-processing companies through our participation with the Computer Interface Subcommittee of the Mailers Technical Advisory Committee. This estimate cost is the price that these list-processing companies expect to charge for converting a mailer's computerized file.

"We recognize that these computerized mailers will incur costs associated with the conversion from the five-digit to the Zip +4 code other than the computer address matching costs. These costs will vary from company to company, depending on file structures, program sophistication, programming capabilities, etc. We estimate that these costs should be about equal to the actual computer conversion cost."

### Mailer's Investment

"Using the estimate for total conversion costs of two cents per address and a rate incentive of one-half cent per mailing, the mailer would recoup its investment in 12 months with only four mailings per year per address.

"Even if the cost were considerably larger, monthly mailers could still recover full cost in a year. We have taken as an example a smaller-size computerized mailer with 200,000 address records who mails a monthly bill or statement to each address.

"If the mailer contracts with a service bureau, the charge might be as high as $10 per thousand or $2,000. Added to that would be other miscellaneous internal costs of conversion, such as programming to modify record layout formats and other addressing software. This should be about the same as the service bureau charge on the average, but might range from $2,000 to $10,000 for this smaller mailer. So the total cost of conversion could be between $4,000 and $12,000.

"If such a mailer sends a monthly statement to each of 200,000 names in its file, then it mails 2.4 million pieces of first-class mail annually. Applying the half-cent incentive to each piece results in a total reduced postage of $12,000. That figure, less conversion costs which range between $4,000 and $12,000, would bring this mailer to a break-even point in as little as four months and probably no more than a year. It is important to note, however, that this is only one example. The actual time needed to break even depends on the complexity of each mailer's files, the programming needed and the frequency of mailings."

# USPS Releases New Zip Codes

(Continued from Page 1)

Discussing the computer tapes containing the Zip + 4 data base, the Postal Service noted "every delivery address in the country has been assigned a 4-digit add-on, and all Zip + 4 codes are contained in the computerized directory."

The agency said it performed "an extensive line-by-line verification of all data and found the file to be more than 99% accurate."

According to Don Kirkendall, of the USPS Office of Zip Code Expansion, the data base is available on 1,600 bit/in. and 6,250 bit/in. tapes in either Ascii with standard IBM labels or Ebcdic with or without the labels.

The national file makes up 87 1,600 bit/in. tapes, each with between 230,000 and 240,000 records; a single 6,250 bit/in. tape contains the information of three 1,600 tapes, he said. The tapes are divided by ranges of Zip Codes, according to Kirkendall, who added they will be delivered with full documentation.

To obtain more information on the tapes and an ordering form, mailers should contact their USPS customer service representative or postmaster, he said, indicating it will take two to three weeks for delivery. Mailers are asked to make copies of the tapes and return them within 60 days.

Kirkendall explained there are four general categories of use for the tapes: to convert an organization's own files, to convert clients' files, to reproduce the data in machine-readable form for sale and "anything else." Mailers under the last category will have to negotiate a licensing agreement with the Postal Service.

Update tapes will be released periodically, perhaps twice a year, Kirkendall said.


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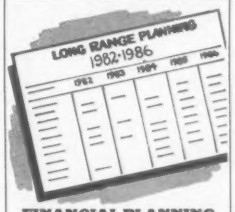
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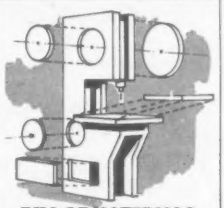
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CW 7/6

# South Dakota Breaks $2.5 Million 370 Lease

(Continued from Page 1)

year term of the lease was not in accordance with statutes governing the lease of data processing equipment back in 1976. Janklow said the state entered the lease term "when there was no statute authorizing seven-year leases."

However, Mark Smith, state assistant attorney general, said there was no statute on the books in 1976 prohibiting the signing of a seven-year lease.

According to the state attorney general's office, the present lease term for computer equipment cannot exceed five years. However, that statute was not passed until 1978, two years after the computer contract was signed with Computer Investors Group (CIG) of Parsippany, N.J.

CIG later assigned the lease to Aetna Life and Casualty Co., which in turn assigned the lease to American Re-Insurance, a wholly owned subsidiary of Aetna.

Janklow laid the blame for the signing of what he termed a "purported contract" on the powers-that-were at the time it was executed.

### Classic Example

"What we've got here is a classic example of bureaucrats — the state's bureaucrats and CIG's bureaucrats — all dealing with one another outside the law," Janklow said. "I've got a fundamental responsibility to the taxpayers to keep them from getting ripped off. The fact that someone in the state signed it [the lease] doesn't mean anything."

Asked if he thought the state was deceived or misled in signing the contract, Janklow replied, "I can't tell you that. I wasn't there."

However, state records show that Janklow served as the state attorney general when the lease was signed. And Lawrence Piersol, attorney for American Re-Insurance, noted the state attorney general's office was charged in 1976 with the responsibility of approving such lease agreements for "proper form."

Assistant Attorney General Graham Gormley said that such contracts are routinely approved for form now, but he did not know if this was the case in 1976, when Janklow was attorney general.

"Over his own signature, he [Janklow] approved two different aspects of this lease, and his office had to approve it for general form," Piersol said in a phone interview.

Piersol said the lease his client holds is "perfectly valid, as there was no law on the books prohibiting it when it was negotiated and signed.

"Add to this the fact that the state said it wanted to get out of the lease only this year," Piersol said. "It had paid faithfully on it for four years before then, with the system working as designed and specified by the state. The system's performance has not been raised as a question here, anyway."

Piersol added American Re-Insurance is still owed more than $800,000 on the $363,000 annual lease, set to expire in 1983.

A recent decision handed down in U.S. district court here ruled that the federal government holds no jurisdiction in the case, referring any further action down to the state courts. But a spokesman for American Re-Insurance's legal department said an appeal to the U.S. circuit court of appeals "is assured," although no such appeal had been filed at press time.

A part of the suit filed by American Re-Insurance names Janklow and three other state officials as defendants and seeks damages from them for "tortiously interfering with the contract relationship between the plaintiff and South Dakota," according to the suit.

The three others named in the suit are James Brinkman, director of purchasing and printing, Timothy Englehart, director of the Bureau of Administration, and Vernon Larsen, state auditor.

## *Behind Closed Doors: A Nod for New CPU*

PIERRE, S.D. — The events that led the state of South Dakota to break a computer lease began as low-level rumblings from behind closed doors last winter.

According to published reports, Gov. William Janklow met then with the state legislature's Joint Appropriations Committee in a private session to discuss raising funds to buy a replacement system for the one it had rented on a seven-year lease in 1976.

Despite the state's apparent lease obligations, the governor gained the approval of a $150,000 appropriation to buy a replacement system. The system was bought from Comdisco, Inc. of Walnut Grove, Calif., in early June.

The system, now being installed in Pierre, is a 4M-byte IBM 370/158 — identical to the system the state had originally contracted to lease from the Computer Investors Group (CIG). It cost about $150,000, less than half the annual fee for the leased system.

In a phone interview, Janklow argued that the system delivered in 1976 by CIG was not the same system advertised by the state in the original specifications. It was instead an upgraded model, one for which the state accepted delivery anyway and one which has functioned properly, he said.

Lawrence Piersol, attorney for American Re-Insurance, the present lease holder, said the changes in the system specifications were drawn up by the state and, in particular, by the Bureau of Administration .

# MCI Scores in Interconnection Battle

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — MCI Communications Corp. has pulled off what appears to be a major coup in its years-long interconnection battle with AT&T.

Currently, an MCI Execunet customer must input a total of 22 digits to complete a long-distance call and must use a Touch-Tone telephone or pad. An AT&T customer, by comparison, also can use a rotary dial phone and has to input a maximum of only 11 digits.

The phone company has insisted it is technically infeasible to provide MCI customers with a simple access procedure. One result has been to limit the spread of Execunet service — which, according to MCI — charges 20% to 30% less than Bell for service during business hours and 40% to 60% less on evenings and weekends.

However, beginning next month, customers of the Northwest Iowa Telephone Co. will be able to access either AT&T's or MCI's long-distance facilities using rotary or Touch-Tone phones and an 11-digit dialing sequence.

### Northwest, MCI Pact

Under an agreement negotiated by the two companies last month, Northwest — a rural telephone company with about 2,100 customers — will automatically record the telephone numbers of subscribers accessing MCI's long-distance network. Previously, like other telephone companies, Northwest provided this automatic number identification service only to AT&T. It is largely because of this exclusion that most MCI customers must still use a 22-digit rather than an 11-digit dialing code.

An additional offshoot of the Northwest Iowa agreement is that it will link the customer directly to a "trunk-side" connection. In other areas, an MCI spokesman explained, a call destined for the MCI long-distance network goes through a number of intermediate switching facilities and circuit links, which reduces transmission quality significantly, particularly when data is being transmitted. About 5% of all Execunet customers transmit data.

The agreement with Northwest Iowa Telephone Co. is the first of at least six that MCI hopes to sign with independent telephone companies during the next several months.


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## *To Head Off Data Flow Restrictions*

# Reagan Fostering Support for OECD Policy

By Jake Kirchner
CW Washington Bureau

WASHINGTON, D.C. — The Reagan administration has initiated a program to foster private-sector support for the voluntary privacy guidelines recently adopted by the Organization for Economic Cooperation and Development (OECD).

The program, under the direction of the Commerce Department's National Telecommunications and Information Administration (NTIA), continues the department's commitment to the guidelines first developed during the last months of the Carter administration [CW, Jan. 26].

One reason often pointed to by federal officials for supporting the guidelines is the hope that widespread U.S. adoption of their principles will ward off more restrictive data flow legislation in countries that are prime markets for U.S. DP and telecommunications services.

NTIA officials also noted recently that, as an OECD member, the U.S. is committed to the privacy agreement embodied in the guidelines. Additionally, information gathered through the NTIA program will help the U.S. prepare for an October OECD meeting that will review implementation of the agreement, they noted.

### Project Activities

According to Jane Yurow, director of the NTIA Project on OECD Privacy Guidelines, the project includes five major activities.

- Consultation with trade associations, corporations with international interests and research institutions about compliance with the guidelines.
- Preparation of materials to provide guidance to corporations and associations interested in developing privacy policies.

"We are here to assist corporations on a number of levels. One is to inform them about the significance of the guidelines and, beyond that, to help corporations or firms that want to develop a privacy policy," Yurow said in a recent telephone interview. "If a firm wants to develop a privacy policy but doesn't know how to go about doing that, we would supply them with materials, talk with them and try to put them in touch with companies that have developed that kind of thing," she said.

Yurow said NTIA is seeking the help of companies that have privacy policies. "If companies are willing to share their policies or to share their process of making policy, we are very interested in putting companies that have done it with companies that want to do it," she explained.

- Cooperation with industry groups in the organization of public meetings and seminars to discuss implementation of the guidelines.
- Cooperation with the State Department in exchanging information with other OECD countries that have signed the guidelines agreement as to their progress or problems in implementing them.
- Working with federal agencies and the State Department private sector advisory group on transborder data flows to develop a U.S. position on guidelines implementation for discussion at international meetings.

*"If companies are willing to share their policies or to share their process of making policy, we are very interested in putting companies that have done it with companies that want to do it."*

NTIA officials said they hope to have a high-level administration statement supporting the guidelines sometime this month. While urging adoption, the agency has been careful not to dictate to companies how they should demonstrate compliance.

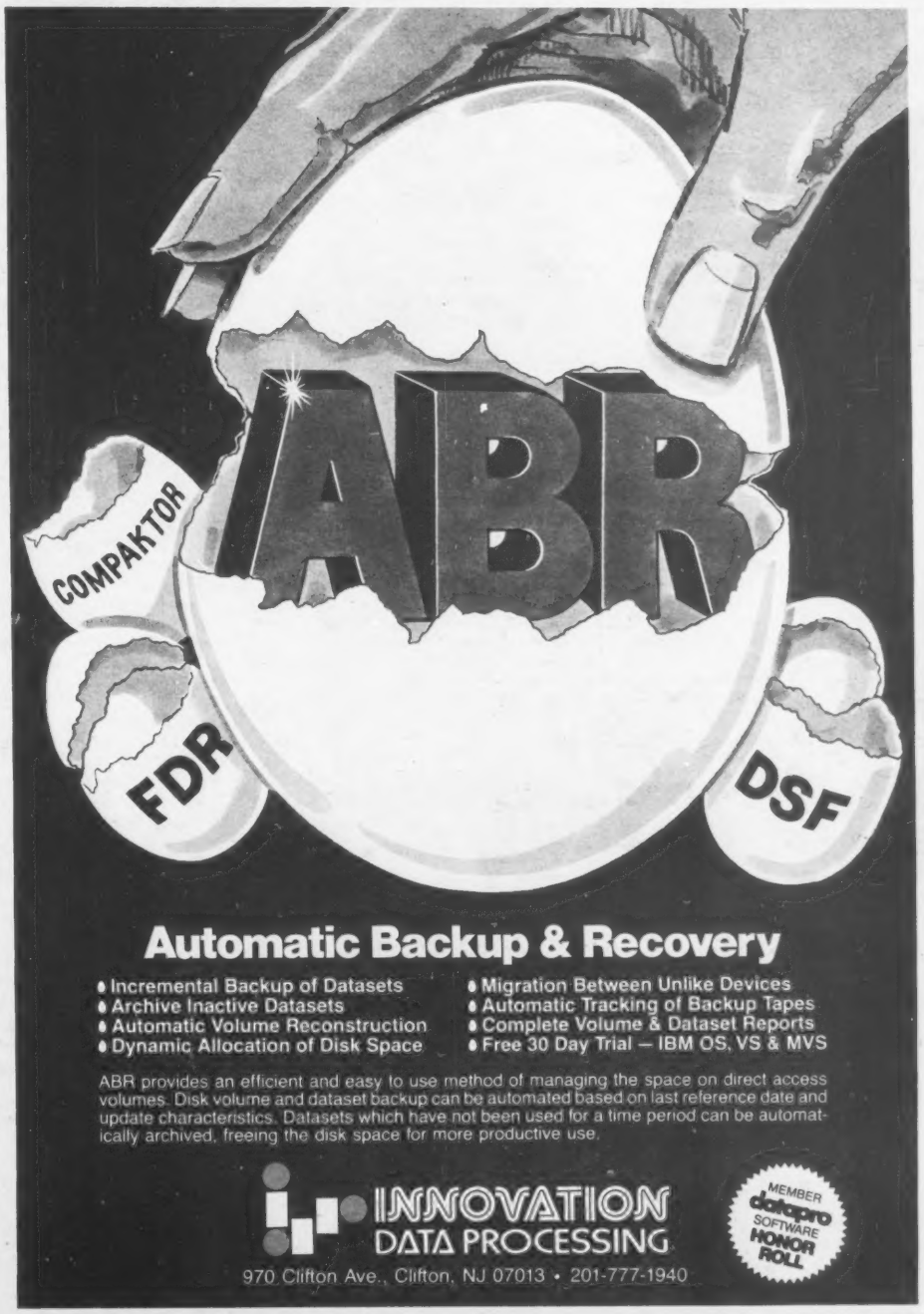
### Popular Approach

Hugh Donaghue, Control Data Corp. vice-president and chairman of the State Department transborder data flows advisory group, said recently a "popular approach" of corporations has been to write a letter to the secretary of state indicating support of the guidelines.

He said it is up to the individual corporation or association to decide whether and how to support the guidelines. But if companies do support them, they should "visibly demonstrate" that fact, Donaghue said.

He noted some corporations have given notice they back the guidelines through public speeches by high-level executives. Others have included statements in yearly reports and in comments at stockholder meetings.

Organizations willing to provide information on their privacy activities or those that want more information about the OECD privacy guidelines and the NTIA project should contact Yurow at NTIA, Room 703, 1800 G. St., N.W., Washington, D.C. 20504.

# Poll: Users, DPers Agree On Criteria for Success

(Continued from Page 1)

ly among managers and DPers in all 19 companies — despite differences in company revenue size, DP budget size, industry affiliation and respondent's salary — the researchers found a way to specify priorities for action most American companies should take to improve DP.

MIT's Robert M. Alloway and Judith A. Quillard identified four priorities for action in reporting results of the survey to a seminar recently held here by the Center for Information Systems Research (CISR) and MIT's Sloan School of Management.

The top priority for action most U.S. firms should take to improve DP is to shore up the DP department's responsiveness to user needs, Alloway and Quillard reported.

### Second Priority

The second priority for action has four components:

- Develop more analysis systems.
- Develop communication with managerial users.
- Train users in general DP.
- Get user-oriented systems analysts who understand user operations.

The third priority for action entails DP strategic planning and allocation of resources to key business areas, the researchers told the CISR seminar. New system development should be improved in terms of reducing development time, cost and disruptions as well as improving the quality of systems produced.

Alloway and Quillard named seven components in the fourth priority for action:

- Develop more inquiry systems.
- Improve user attitudes toward DP.
- Involve senior user managers in forming and evaluating DP policy.
- Improve quality of computer-generated reports.
- Improve quality of DP systems analysts.
- Improve availability and timeliness of computer reports delivered to users.
- Reduce hardware and systems downtime.

To derive the priorities for action, Alloway and Quillard had the user managers and DPers subjectively rate, on two separate seven-point scales, the relative importance of 26 criteria for DP success and how well their organizations met the criteria.

### Importance Scale

On the importance scale, seven points meant a criterion was "very critical" to DP success in the respondent's organization and one point meant the criterion was "irrelevant." On the performance scale, seven points meant the organization's performance in meeting a criterion was "excellent," while one point meant "very poor."

For each of the 26 criteria, the researchers measured gaps between relative importance and relative performance by subtracting the performance average from the importance average. A high priority for action was indicated where user managers and DP professionals agreed that performance in meeting a criterion fell a few points below importance of that criterion.

In the survey, managers and DPers agreed strongly that none of the 26 criteria were met "very well" at the 19 companies, but that the criterion met better than any of the others was development of systems that monitor performance of other systems.

### Respondents' Averages

The respondents produced a 5.01 average for that criterion, a 4.99 average for technical competence of DP staff and a 4.85 average for quality of DP systems analysts. They generated a 4.80 average for data security/privacy and a 4.71 average for technical sophistication of new systems.

Alloway and Quillard called these five best met criteria "traditional" and "technical." In contrast, they termed "operational" eight criteria with averages ranging from a three-way tie at 4.56 (for quality of report contents, report delivery and hardware utilization) down to 4.28 (for DP profitability).

Six criteria with averages ranging from 4.26 (for DP support of users' new systems proposals) down to 4.13 (for responsiveness to user needs) were described as oriented toward management of DP. The seven least met criteria for success were described as oriented toward general management and systems development.

In this fourth group of criteria, averages from the poll of user managers and DP professionals ranged from 3.98 (for improving new systems development) down to 3.27 (for the worst met of the 26 criteria — training programs for users in general DP).

Alloway and Quillard said this grouping of the 26 criteria on the basis of performance averages shows that both user managers and DPers believe their companies meet "efficiency-oriented criteria for DP success better than "effectiveness-oriented" criteria.

In other words, more progress has been made in increasing data storage capacity and throughput than in making the data stored and put through systems more valuable to the entire organization.

# *Users of DEC's RSTS Go Independent*

**By Rita Shoor**
CW Staff

PAWTUCKET, R.I. — "Independence" is a word that the Independent RSTS Users Group (Irus) here takes seriously.

When 24 companies that ran Digital Equipment Corp.'s Resource Sharing Time Share (RSTS) operating system on PDP-11 processors first got together, vendor independence was a major issue, according to Irus Chairman Howard Brown.

A worldwide DEC users group called Decus, staffed and supported by the vendor, already existed, but Brown and his employer, Information Systems, Inc., wanted to bring RSTS users together to "provide a means of support for ourselves that wasn't available through Decus."

### Important Vote

Whether the group wanted to be affiliated with Decus and share in the benefits of vendor support was an important question. It opted for independence because it "didn't want DEC representatives at meetings," Brown said. Acceptance of such representation is a "published requirement" for Decus affiliation, he noted, adding DEC also wants to see the minutes of each user group meeting.

That "no" vote was expensive in some ways because it meant that the organization would be staffed on a voluntary basis. But it has also made it easier for members to be exposed to DEC-compatible hardware and software packages offered by competitive vendors, Brown said.

Presentations from DEC competitors at user group meetings can mean tension if a Decus representative is present, he reasoned. Users who attended such sessions at Decus-affiliated groups "sometimes got flak from DEC" at a later date, he maintained.

### Continuing on Road

Flak or not, Irus is continuing along the vendor-independent road with Access-11, a multivendor trade show and conference for PDP-11 RSTS users. Beginning Oct. 29 at the Hartford (Conn.) Civic Center, the two-day show is "intended to foster a free and competitive marketplace for DEC users."

Vendor independence seems to be working for the two-year-old users group. Since its founding in 1979 as the Southeastern New England RSTS Users Group (Senerug), it has quadrupled its membership and expanded from a regional to a national organization.

More than 100 companies are members of Irus. "Over the last month, we've pulled in about six new members each week," Brown said, attributing the recent surge to the publication of an Irus newsletter.

The membership fee for Irus is $50; vendor-affiliate memberships cost $70. Additional information about Irus is available by writing the group at P.O. Box 3043, Pawtucket, R.I. 02861.

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# Bell 'Going All Out' to Establish Separate Subsidiary by March '82

WASHINGTON, D.C. — The mission of AT&T's forthcoming fully separated subsidiary is "to be a world leader in providing innovative and customized voice, video, data storage, retrieval, processing and distribution, word processing and electronic mail services," according to AT&T Vice-Chairman James E. Olson.

Bell is "going all out' to establish the new subsidiary by next March 1, as called for in the Federal Communications Commission's (FCC) Second Computer Inquiry Decision, Olson told a recent meeting of the Society of Telecommunications Consultants here. Meanwhile, the FCC "has some knotty questions of its own to resolve."

Evaluation of the assets that must be transferred to the new subsidiary is one piece of unfinished business, Olson said. Others involve separation procedures "whereby some portion of long-distance revenues are assigned to cover the costs of local service," and "the larger, longer range question of how equitably to eliminate such subsidization since it simply cannot continue in the competitive world we're entering.

"But whether the regulators can iron these things out in time for us to meet the March 1, 1982 deadline is not for me to say."

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# WP Managers Given Advice On How to Wrest Influence Away From MIS Managers

By Ann Dooley
CW Staff

ATLANTA — The MIS manager is "the only game in town" right now when it comes to implementing office automation in a company.

Speaking at the International Information/Word Processing Association's Syntopican IX Conference, Robert J. Elliott, a partner in the Management Information Consulting Division of Arthur Andersen & Co., warned the gathering of word processing managers that to get a piece of the action they will have to convince management they are not just a support function, but corporate management material.

The DP department has established itself as a corporatewide function, although in reality data processing is really only an adjunct to office systems in delivering information to a manager's desk, he said.

But word processing managers should not give up hope of becoming information resource managers, Elliott advised the group, which was comprised largely of women supervisors. "You must become more of a business person and become more accepted by management," he noted.

### Beware Smugness

Elliott also warned the DP/MIS manager against the danger of becoming too smug and secure in his position. The MIS manager needs to put a service hat back on and be responsive to users, he advocated. As information resource manager, the DPer will not be handling large mainframes and will have to adjust his expertise accordingly.

Ultimately, the department or individual that "does it right" will be the one in charge of the growing information resource, Elliott predicted.

To implement a successful office automation plan, the future manager must understand the business and goals of the company.

When implementing the plan, a team should first be established to determine the problems, identify all the data sources and examine the company trends. The team should also consider large-scale trends in technology, society and industry. Objectives should be developed, a strategy set and a plan instituted. The first step is to fully understand the business plan before implementing an office automation plan.

When the company information needs have been determined, the team should next determine if the technology exists to implement them. Anyone can plan for what they would like to have or what they actually need, but the existing technology does not always meet those needs, he warned.

Elliott also advised the audience that, before implementing a plan, it should be coordinated with the DP department to ensure that efforts are not being duplicated.

The management structure should integrate DP, office automation and communications under one manager rather than fragmenting it under separate divisions. The new information resource manager will extend his job beyond DP, encompassing technology, information and people.

If this kind of implementation planning does not occur, a manager is paving the way for a variety of pitfalls. Top management support or understanding will be missing; organizational needs will not be addressed; user resistance will occur, thus damaging implementation; and office automation will not fit into the corporate scheme, he stated.

CW at Syntopican

On the other hand, it is possible to plan too much. The new manager must learn how to plan in an evolving environment and must be able to accept change and even some failures. Managers should avoid giant, irretrievable commitments, he said.

By 1985, office automation will be at a proven level and available for general use, he noted. Office automation will begin to occur every time a company makes a major corporate move. Some of the more innovative managers will begin and the wait-and-see managers will eventually follow.

Some major problems that will have to be faced will be that low-level people in a company will be purchasing incompatible equipment in what will be a scattershot approach to implementation. Companies will find they have to retrench and many managers and top executives will grow disillusioned, he warned.

Another potential problem to overcome will be educating management on how office automation and the information resource can be integrated into the overall structure of an organization to increase benefits.

# Brown, Harris On IBM Board

ARMONK, N.Y. — IBM last week renamed to its board of directors two members of former President Jimmy Carter's Cabinet.

Dr. Harold Brown, Carter's Secretary of Defense, and Patricia Roberts Harris, Carter's Secretary of Health and Human Services, rejoined the board that runs the world's largest computer manufacturer.

Now a visiting professor at Johns Hopkins University's School of Advanced International Studies, Brown first joined IBM's board of directors in 1972 while he was president of the California Institute of Technology. He was Secretary of the Air Force as the Vietam War reached its peak under former Presidents Lyndon Johnson and Richard Nixon.

Harris first joined the IBM board in 1971. Brown and Harris resigned their directorships to accept the Cabinet jobs in January 1977.


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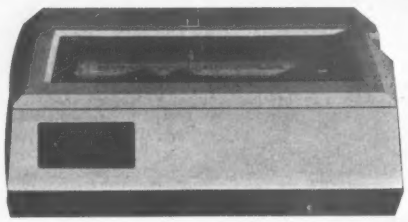
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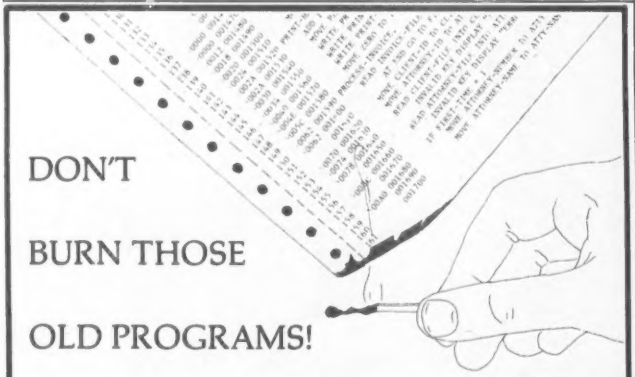
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# Investment Groups File Fraud Suit Against Broker

By Lois Paul
CW Staff

MIAMI — Eighteen investment groups have filed suits totaling $100 million against stockbroker Dennis Greenman, who was accused by the Securities and Exchange Commission (SEC) of defrauding investors of at least $53 million in a computer-based scheme [CW, April 27].

Also named in the suits are the investment firms of A.G. Becker, Inc. and Paine, Webber, Jackson and Curtis, Inc., as well as Greenman's employer, Barclay Financial Corp.

Greenman's attorney, Robert Paul, said his client is reserving comment on the matter at this time. "We prefer to do our talking in court at the right time," Paul said.

According to the attorney, SEC has alleged computer scams were made in various parts of the country on the short-term trading of options. He refused comment on whether his client actually used computers. "Supposedly, the investors were told there were computers involved," he said.

"I don't really have very much sympathy for the investors who are now bringing allegations and charges,"

"I just don't think this is a case of widows and orphans. This is a case of very sophisticated investors that were very greedy people. They thought they would have a chance to make a big score, no questions asked," despite their knowledge of how complicated security trading and options are.

"The SEC said there are 400 people involved. Greenman, I don't think, ever met or spoke to, at the maximum, 40. So where did the other 360 come from? Who spoke to them and what did they tell them? And what did they ask?" Paul continued.

"I think the investors have clearly demonstrated they asked no questions at all of the people — whoever they may have been — who introduced them into these short-term trading programs," he added.

The evidence to date indicates there were a number of people gathering funds for these programs for their own benefit, unrelated to Greenman, Paul said.

"There were just millions of dollars thrown at him for investment purposes, no questions asked, on the basis that there would be huge profits. The greed, the lack of inquiry and the competing interests of the individuals who raised these funds are things that will come out in the end. They are starting to come out now.

"It is convenient to look at Mr. Greenman as an alleged villain when there are many independent interests who have to explain their actions," Paul said.

# Former Calma Employee Held In Memory Board Theft Scheme

By Jeffry Beeler
CW West Coast Bureau

SAN JOSE, Calif. — A former Calma Corp. employee has been arrested for allegedly masterminding a scheme to steal memory boards from his ex-employer and then resell the products to Calma at inflated prices.

The scheme was apparently perpetrated by an eight-member theft ring that allegedly included William Gouker, who stands accused of helping to swipe more than $100,000 worth of boards from Calma's warehouse in nearby Milpitas.

Gouker, 30, was jailed on June 25 after being charged with grand theft and receipt of stolen property, and the Organized Crime Unit of the Santa Clara County Sheriff's Department expects additional arrests to follow in the "fairly near future," according to detective Paul Marston. Investigators in the case declined to identify any of Gouker's suspected accomplices or to set a possible timetable for their future arrest.

### November Beginning

The board-stealing racket, which was first reported on June 26 by the San Jose *Mercury*, reportedly began last October or November and continued until the following April, when Gouker was fired from his job as a Calma purchasing agent. His dismissal was apparently unrelated to his alleged involvement in the board-pilfering ring.

Most if not all of Gouker's alleged thefts involved 16-bit memory boards for the Data General Corp. Eclipse-series minicomputers.

With the apparent help of at least one unidentified Calma insider, Gouker allegedly diverted some of his former employer's DP-supplied memory boards to a local dummy corporation he himself controlled. The corporation, known only as Cetron, then resold the purloined boards to Calma for $6,500 each, which represented a sizable markup from DG's original per-unit price of $4,200, Marston said.

The authorization for Calma's purchases apparently came from Gouker, who claimed on his invoices to have bought the boards in question from a Cetron salesman named Jack Delaney. Gouker and Delaney were later found to be the same person, Marston said.

The existence of an organized board-stealing ring first came to light only about two months ago when sheriff's detectives discovered a link between Gouker and Cetron. When police later detained the suspect for questioning, he reportedly admitted his ownership of Cetron and his use of the Delaney alias.

But he denied taking part in any thefts and claimed instead to have acquired the stolen boards as scrap from two third-party dealers, police said. When later asked to substantiate his claim, Gouker allegedly produced a set of invoices purportedly originating from two companies called Execar and J.P. Associates.

Execar proved to be nonexistent, and J.P. Associates — though genuine — was quickly cleared of any involvement in Gouker's alleged misdealings.

## *DPers Need 'Marketable Skills'*

# Survey Finds What It Takes to Succeed in NYC

By Bob Johnson
CW New York Bureau

NEW YORK — What does it take to be a successful DP professional in the country's most technologically competitive region?

According to an executive search firm in the New York metropolitan region, computer executives must be one step ahead of the game and constantly aware of their "marketable" skills.

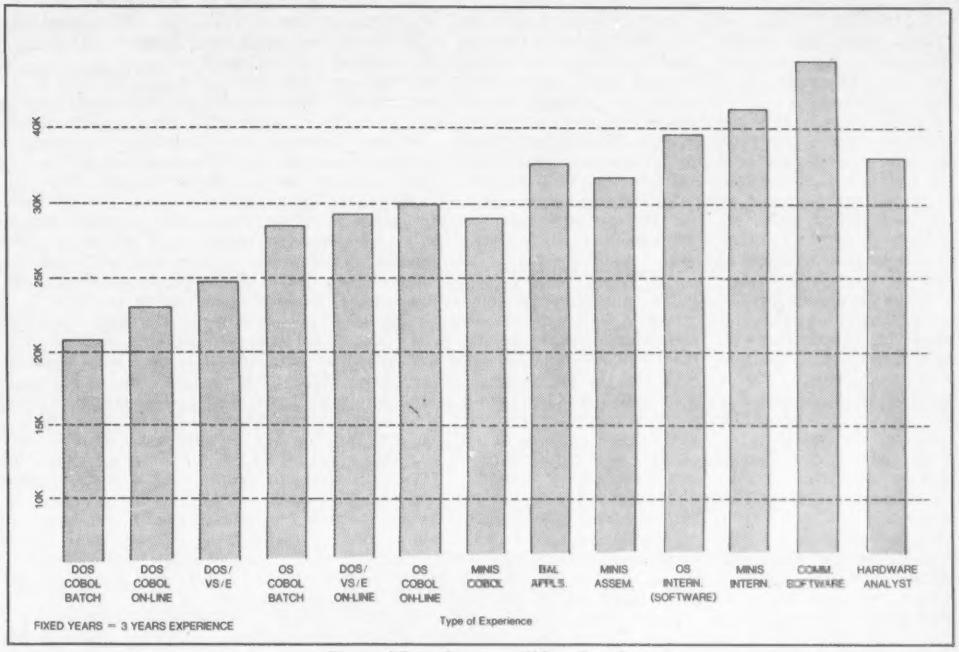
A recent survey of the region's DP market and its salary structure by Technical Decisions, Inc. (TDI) revealed that the "volatile" nature of the DP industry and of the economy itself have created two levels of DP professionals — those at the experienced level, with five to 10 years' experience, and those at the junior level, with one to three years' experience.

Between those two levels, there is an obvious lack of people with two to four years of experience whom, according to TDI, corporations prefer to groom for careers.

This situation, in addition to DP's increasingly vital position in corporate functions, has produced a seller's market, the study noted. This is particularly true at the intermediate levels of programmer and programmer/analyst, the study added.

Sandra Peters, one of TDI's founders, said specific knowledge, such as the method of mechanizing a vital function of the company, can be an invaluable asset to a career DPer. Considering the amount of money spent on hardware, she said, a company usually does not mind paying a premium for someone who possesses the marketable skill it needs.

Getting that proper marketable experience early in one's career can make the difference in long-range salary levels, the study emphasized. For example, junior- or intermediate-level Cobol programmers should have certain language requirements and a good knowledge of operating systems. Senior-level requirements are more specific, requiring knowledge of MVS, JES-2 on an IBM 360/168 CPU with IMS data base experience. "The higher the dollar range of the position, the more specific the specifications become," Peters explained.




**Type of Experience vs. Salary Levels**

### Experience Counts

In terms of salaries, years of experience do matter, but they are not as important in DP as they are in other professions, the survey indicated. "The direct relationship is much closer to a ratio of the technical level of an individual than to a salary level," Peters said. "As an individual gets the proper experience or marketable background, he is then in a position to command a higher dollar level."

What is marketable experience? "Marketable experience is the specific technological path that DP is taking at a given time," according to the study. "In today's market, it means large-scale systems, preferably IBM operating systems, IMS, CICS, distributed processing and minicomputer communications," Peters said. Networking and mini network processing were also included.

The survey indicated that a "business analyst" career path in DP is emerging. This position would require a person to have enough technical skills to be able to resolve business questions. This business and technical awareness means the best utilization of the machine for the full benefit of all departments of a firm, the study said.

James J. D'Amora, TDI's other founder, said the New York metropolitan area appears to have the highest rate of technically competent DP professionals per number of people in the field — as well as the highest salary compensation.

The size of a company and the type of industry it serves indicate how much it will spend for DP technology and talented employees, D'Amora said. However, for most types of industries, DP is becoming a ne-

(Continued on Page 12)

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# Long Lines at Customs May Soon Be History

By Lois Paul
CW Staff

WASHINGTON, D.C. — Long lines and interminable delays at U.S. Customs facilities may eventually be a thing of the past.

Since February, 150,000 machine-readable passports have been issued here and the system will most likely be in full operation within the next several years, according to Norbert Krieg, deputy assistant secretary of state for passport services.

"We are dedicated to producing passports quickly and efficiently. The Immigration Service would be looking to some other aspect, that is matching the name and data in the machine-readable zone of the passports to check with a central data base for terrorists, outstanding warrants and so on," he said.

The computer-coded passports do not look much different from the previous models. However, the data page is on the inside cover and is covered with a thin layer of transparent plastic.

Specially coded data on the laminated page is machine readable, Krieg said, noting that the Input Business Machine, Inc. passport readers that will be used have not yet been installed at ports of entry. Contract negotiations still are going on with Planning Research Corp. to supply the production equipment needed.

### Outmoded Equipment

The equipment that now produces passports is outmoded and cannot be replaced, according to Krieg, who said the Friden Flexewriters they have been using are no longer available.

"We decided to look to the future and computerize the entire production. Initially, there were some bugs, which is to be expected as this is a guinea pig operation and had to be done with real people in realistic situations," Krieg added.

Rather than increasing costs, the new system will lower them, particularly in regard to employees, Krieg said. Fewer employees will be involved and, although there will be no firings, it is expected that some positions will be vacated by attrition.

The main reduction in staff will result from the fact that fewer seasonal people will be hired. "We are doing this an agency at a time. There will be no overnight changes," Krieg said.

Washington, D.C., is the first of the 13 passport agencies involved in the new system. Chicago will be the second. Krieg said there already have been some modifications to the office there. Most of the equipment is on hand, but staff has not yet been trained.

The entire passport operation of each agency is involved, he said, including adjudication, which involves examination of applications to see they are complete and to screen out potential fraud.

"This will continue similarly, with some modifications. Adjudicators will be able to use information on CRTs," Krieg explained.

### Application Data Base

A data base is being developed based on incoming passport applications. The data base includes basic information, such as name, date of birth and sex. There also is a reference to the passport application that is retained on microfilm, and an attempt is being made to link the two.

The application itself occasionally is used in an emergency, for instance, if a person dies or has an accident while traveling, Krieg said. His office has received requests to find the next of kin.

There were some misprints and spoiled passports that led his agency to insist that the Government Printing Office be more accurate in its printing of the documents.

Certain photographs that might have been accepted in the past will not be acceptable now. They have to have a light background and the proper exposure.

The passports' format meets the standards set by the International Civil Aviation Organization, Krieg explained.

The British are setting up a pilot project at Heathrow Airport to read the U.S. computer-coded passports beginning next year. "If it is successful, they will ask Parliament to set up a similar system," Krieg explained.

The Germans also are working on developing a machine-readable card, he said, and are putting equipment in to read these beginning in 1982.

"It is always nice to be ahead rather than behind," Krieg added.

# 'Marketable' Key to Game Of Salaries in Big Apple

*(Continued from Page 11)*

cessity for survival, and the same race for talent can exist in a 50-man company as in an international bank, TDI's survey reported.

The survey also indicated that DP levels have risen rapidly over the last five years. In the early '70s, the market was in a critical position. Highly-educated computer professionals with five to 10 years of experience were forced to accept jobs for as little as $11,000 a year. Today, a technician with excellent technical exposure can start at $15,000 and earn up to $20,000 in one or two years, the study added.

Peters said the increase in salary structure over the last five years ranges from 19% to 26%. As an example, an intermediate BAL, CICS programmer five years ago would have earned about $20,000; today, that same programmer could earn as much as $30,000.

TDI predicted that the future of DP lies in communications and associated data bases. Although there is some controversy about which approach is best, both mainframes with a distributed network or a mini network offer potential. "The DP solution depends on the need of a corporation to have a centralized data base and fast processing stations. The salary of communications people will lead this market," the report stated.

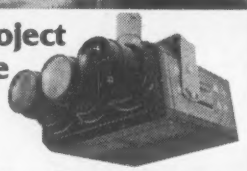
Two other fields that the report viewed as rapidly emerging are microprocessing and that of the aforementioned "business analyst." Microprocessing and its related teleprocessing and batch modes are areas to watch, TDI noted.

The survey concluded that DP technicians should now have more freedom of choice in their avenues of technological and business advancement. The highest earning potential will be open to those who watch and keep up with the technological paths DP is taking.





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*Pat on Back for Justice Attorneys*

# Court Refuses to Dismiss U.S. vs. AT&T Case

By Phil Hirsch
CW Washington Bureau

WASHINGTON, D.C. — Justice Department attorneys prosecuting the government's antitrust suit against AT&T have received a sorely needed pat on the back from presiding Judge Harold H. Greene.

Late last month, as the government was completing its case, Bell asked for an immediate oral hearing on its motion to dismiss the suit. AT&T's chief counsel, George Saunders, claimed, "The issues are clear and the government has not made a case."

However, Greene decided the government's evidence does not justify such "cavalier treatment." Justice Department attorneys have presented a "respectable" case, he added, without deciding any of the contested issues. "I certainly could not say it is self-evident that [AT&T's] defenses are valid or will prevail."

Meanwhile, White House Counselor Edwin A. Meese received another protest concerning reports that a White House task force has recommended abandoning the AT&T suit.

Reportedly, Secretary of Commerce Malcolm Baldridge and Defense Secretary Casper Weinberger support the task force recommendation, while Assistant Attorney General William Baxter, chief of the Justice Department's Antitrust Division, opposes it. Before being implemented, the recommendation must be presented to the Cabinet, and that is what the recent protests are trying to prevent.

On June 22, Herb Jasper, executive vice-president of the Ad Hoc Committee for Competitive Telecommunications, which represents several specialized carriers, said in effect that if the recommendation is adopted, the Reagan administration will be condoning "corporate lawlessness."

The latest broadside came from C. Gus Grant. Grant is head of a newly-formed trade association, the Fair Opportunities for Competition in the U.S., which includes Southern Pacific Communications Corp. and three telecommunications equipment manufacturers. "To terminate the AT&T case after years of effort would call into question current offers to deregulate telecommunications" and "harm, perhaps irretrievably, the administration's credibility concerning antitrust law enforcement," said Grant.

According to a knowledgeable source, if the government does decide to drop the case, its decision will have to be reviewed by Greene. In that case, the source said, there is a strong possibility that opponents would get a chance to be heard. They not only would be allowed to participate in this proceeding, but — if it led to an adverse decision — could request review by the U.S. Circuit Court of Appeals.

# Seminars Set For New York

CAMBRIDGE, Mass. — The Yankee Group is offering two August seminars in New York and Palo Alto, Calif., entitled "The Restructuring of the Telecommunications Industry."

The seminars will deal with technologies and strategies: what is forcing the restructuring, what its impact will be on the communications/computer industry and how users are going to react to the changes.

The seminars will also explore how communications users are building Resale Common Carriers and reducing their communications costs by doing so.

The New York seminar will be held Aug. 4 and 5 and the Palo Alto version will be held Aug. 11 and 12. Registration costs $725 for the first person from any given company and $625 for each additional person from that company. More information is available from The Yankee Group, P.O. Box 43, Cambridge, Mass. 02138.

# Boston to Host Session on IBM

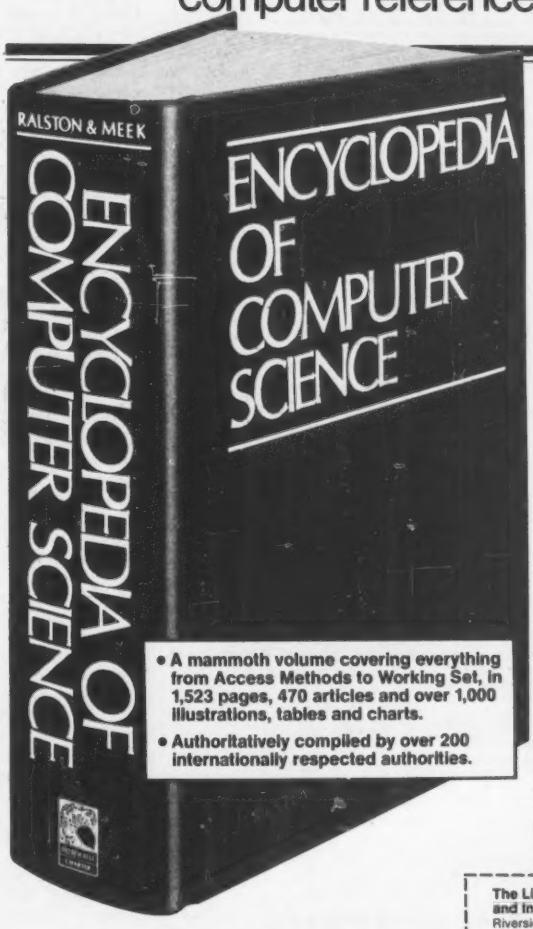
BOSTON — A conference on "The Control and Audit of IBM Systems" will be held here Sept. 21-23. The conference will deal with the technical issues of controlling and auditing large and small IBM software and hardware systems, according to its organizer, MIS Associates.

Concurrent technical sessions will discuss the security, control and audit features of MVS, Resource Access Control Facility, Systems Network Architecture/Synchronous Data Link Control, Time-Sharing Option and other IBM hardware and software products, MIS Associates said.

IBM program products, field-developed programs and installed user programs available for audit use will be described in detail, the firm said.

Conference registration costs $395. Further details can be obtained by contacting MIS Associates at 12 Juniper Lane, Framingham, Mass. 01701.


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*Package Studies Patterns*

# Police Use DP Tactics to Nab Insistent Thieves

By Lois Paul
CW Staff

DALLAS — Policemen here were able to apprehend one suspect and scare away another by using a software package to determine patterns of burglaries and to pinpoint where the alleged offender would strike next.

The University Park police station is employing computer-assisted dispatching, which involves logging all information on calls to the station in a real-time, on-line environment, recording the time and location of the call. The police station installed a Datapoint Corp. Attached Resource Computer (ARC) system and its Associative Index Method (AIM) file indexing software in December.

"What it does is it predicts. It calls your attention to a pattern developing in the first place," Josh Dowdell, a part-time policeman who installed and supports the system and software, explained.

Dowdell is part of an auxiliary program at the police station in which full-time professionals in various fields spend part of their time each week as volunteer police officers. The rest of the time Dowdell is president of Dowco Data Sources, Inc., which sells Datapoint products in Dallas.

### Predicted Burglary

In April, there had been 20 burglaries within a several-mile area by the same suspects. "They were big guys and they were just pushing the front doors down," University Park Police Chief David Beidelman said. By using the computerized system, "we were able to determine where the next burglary probably would occur, at least within a block of it."

An officer assigned to the project's next "hit" saw a Volvo back out of the driveway. "We had heard he was in a stolen Volvo and the chase began," Beidelman said. When the suspect was apprehended, the department was able to clear about 125 burglaries in a single day, he added.

"There was quite a riot in the *Dallas Morning News* about this catch. The day before this happened, the computer predicted where he would be, and that's where they had their people. That's where he was and they showed the actual catch," Dowdell said.

In a similar case in December, the police did not catch the suspect. "They just ran him out of town," Dowdell said. "Everywhere he would go and try out a case, he would see unmarked squad cars and he would just go somewhere else. [As] it ended up, he got caught out in Arizona. He's in jail out there."

### Free-Form Searches

"Very often, in all phases of business, we tend to lock the barn door after the horse gets out. We don't realize that a pattern is developing," Dowdell said. AIM allows the computer-aided dispatching system to encode certain attributes of data in a broad, general sense, he explained. This enables the police officers to do free-form searches on pieces or parts of data.

All the calls that come in for police service are logged in the system. "Then, when it comes time to do something, such as to see what our problems are, we just pull up what we call 'Signal 11s.' Then [we] are able to do plotting on the map and also try to get a determination from the computer on time of the day, what day, point of entry, items stolen and so on," Beidelman said.

Dowdell described himself as a "hybrid," with both police and DP background. He has been a certified auxiliary police officer for the past five years and previously worked within the Dallas police DP department.

"They did something similar on IBM equipment," he said, "and it's not nearly as flexible and it costs a bunch more money. The Datapoint system can get an awful lot of horsepower for a fraction of the cost."

Before the ARC system was installed, calls were recorded by hand in a radio log. "You can't do this manually because there is too much data. It is either beating your head against the wall or figure out how to do it on a computer," Dowdell said.

"It just happened that since I was already affiliated with the department on a part-time capacity, they said, 'Do you have anything that can help solve this problem?' Naturally, I did."

As for the part the system played in apprehending University Park's elusive burglar, "it sure put the information out and let us make the determination on it," Beidelman said.

"A year ago we had a similar rash before the computer and we never did catch the guy," Dowdell added. "He just tore them up for a couple of months and then just quit when he got tired."


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## Corrections

A report that the State of Wisconsin has not taxed software from 1978 to the present ["Wisconsin Facing 4% Software Tax," CW, June 1] was incorrect. Since Sept. 1, 1969, the state has taxed sales, service and maintenance of equipment; rental or leasing of equipment; canned programs; custom programs; and training materials. Taxable only between Aug. 1, 1977 and June 30, 1978 — at which time a Wisconsin State Supreme Court decision disallowed the tax — were "processing a client's data"; time-sharing services; "designing of systems, converting of systems, consulting, training and miscellaneous services"; and keypunching and keystroke verifying.

The article describing Missouri's computerized Child Abuse Hotline in the June 15 issue stated that "A second system, an IBM 4300, will be installed in the fall." Actually, a second system equivalent to the size of an IBM 4300 is planned for installation in the fall.

Dr. Joel Orr, listed as a tutorial leader in a session at the National Computer Graphics Association conference [CW, June 15], is the president of Joel Orr Associates, Inc., computer graphics consultants of Danbury, Conn.

"TI Reduces DS990 Prices" [CW, June 22] should have noted that $200 is the average price increase on TI's Model 911 CRT terminal, not the terminal's price.




'Itseemstoberunningit'swordstogether!'

## *Should Be 25% of Work Time*

# Recruitment Held Critical Task for Managers

By Jeffry Beeler
CW West Coast Bureau

SAN FRANCISO — Many computing managers think they are too busy to get deeply involved in personnel-related matters. But in truth, the task of recruiting, interviewing and training new employees should account for 25% of a typical information systems chief's total work time.

Systems directors who devote less than a quarter of their time to personnel recruitment are probably unable to do their jobs effectively, according to a member of a Laguna Hills, Calif.-based consulting firm known as Realtime Associates, Inc.

With demand for new systems rapidly growing and the shortage of skilled programmer/analysts steadily worsening, computing department managers have to constantly "think recruitment," Realtime Associates principal David Moore said. They also need to pursue new job prospects aggressively rather than merely waiting passively for fresh resumes to come in through the transom.

Aggressive systems managers, for example, are continually quizzing their current staff members and outside sources for names of potential new employees, even when those managers have no immediate job openings in mind. Passive (and therefore less successful) managers, by contrast, wait until they have a pressing need before they start seeking personnel referrals.

### Resume Trap

In searching for promising new job candidates, computing department heads should avoid overdependence on resumes, which Moore described as one of the least effective methods for screening applicants and evaluating professional qualifications.

Resumes add an average of 12 days to the hiring process, usually because they have to go through a lengthy review cycle during which they pass through many managers' hands. Thus, by the time an employer is finally ready to act on a resume, an aggressive job hunter has probably already found work elsewhere, Moore explained.

To speed their response to incoming job applications, computing departments should make multiple copies of their resumes to arrange for all personnel-oriented managers to meet in one place for a mass review session. Even if a resume is at first rejected by its reviewers, it still might prove useful in the future and therefore should be saved.

Moore also advised information systems managers not to be so quick to dismiss and disapprove of "headhunting" as a recruiting practice. "Many people frown on headhunting as somehow immoral or unethical, but in actuality, it's a perfectly valid, legitimate technique for acquiring new employees," he said.

When the time finally comes to start conducting interviews, computing department heads should try as much as possible to explore a job candidate's ambition and native intelligence. Good "chemistry" between a prospective employee and supervisor is 80% to 90% of the hiring battle, Moore said, and is a better indicator of an interviewee's future job performance than either work experience or technical competence.

"If the chemistry isn't right, an applicant probably isn't suited for the job he's seeking, even if he meets all your professional and technical requirements," Moore said.

### Next Task

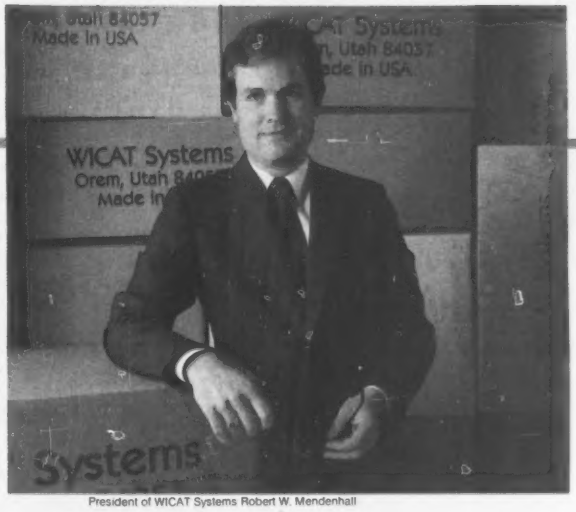
Once a qualified job applicant is identified and hired, an information systems chief's next important recruiting task is to make sure the newcomer feels at home in his new workplace. "Bringing new employees on board is very critical, and unless you make them feel warm and welcome, chances are good you'll lose them," Moore added.

Most employees are riding an emotional "high" when they first come to work for a new employee, but within six months, the individual's excitement has usually turned to disillusionment. To prevent new employees from quitting during this initial adjustment phase, computing directors have to strive to make their staff members feel wanted and appreciated — a difficult task for many managers, who tend to "take things for granted" and prefer to maintain an emotional distance between themselves and their co-workers.

In other remarks, Moore offered some tips about how information systems departments can enhance the effectiveness of their "help wanted" ads. Computing shop managers, he advised, should slant their ads to appeal to a potential employee's desire for new job skills and professional self-improvement.

Job ads that offer respondents a chance to exercise leadership, work with state-of-the-art technology and learn advanced specialties like data communications and data base management will likely draw a large number of highly qualified applicants.


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The 810 RO prints out the status and location of over 470,000 parts and supplies for all *Columbia* and *Columbia* ground-support components for NASA's space shuttle program. Using TI's 150-million character-life impact printhead, the 810 RO also prints transaction reports, local stock movements, purchase requests, forecast requirements and approved parts lists.

And the 810 RO is proving itself in NASA's simulator capsule used for designing the space shuttle. The 810 RO prints out data on the simulator's specification, design and testing results. It gives NASA scientists and engineers the fast, easy-to-read information they need to design and refine the space shuttle interior.

The 810 RO has also had quite an impact on NASA's accounting operations. Its wide, adjustable carriage easily handles a variety of multi-copy forms for accounting, travel authorizations, balances and fund source reports.

Versatile, reliable and speedy, the 810 is providing results for other industries outside aeronautics. Airline, newspaper and real estate industries are using the 810 RO Printer in projects of their own where quick, dependable printing is required.

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If you would like more information on the OMNI 800 Model 810 Receive-Only Printer, contact the TI sales office nearest you, or write Texas Instruments Incorporated, P.O. Box 202145, Dallas, Texas 75220, or phone (713) 373-1050.

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# Data Processing Finding Place in NYC Schools

By Bob Johnson
CW New York Bureau

NEW YORK — Almost 9,500 students a year graduate from New York City high schools with job skills in data processing ranging from data entry to a good working knowledge of Cobol.

That figure came from the Business Education Advisory Commission, a group composed of business executives who work hand in hand with local educators to "help bridge the gap between business and education" and possibly help ease the city's continuing shortage of programmers.

These executives provide facts on the industry's state of the art and review school curricula to ensure adequate student preparation for future DP jobs.

According to the commission, some 38 high schools graduate students from business and data processing programs that cover Cobol, RPG-II and PL/I and give training on the IBM System/3, IBM System/32 and Digital Equipment Corp. PDP-11/34, as well as word processing equipment.

Also available to the students are terminals on line to the city Board of Education's IBM 3031 and 370/158 mainframes (the 158 will soon be replaced by an Amdahl Corp. 470V/7).

Students who attend schools with DP programs are given a DP and business concentration within a given semester that is comparable to many junior colleges, according to Margaret Yard-Friedman, a commission spokeswoman.

"The DP programs are examples of tremendous and timely efforts of devoted educators to break the negative stereotypic image of the high school graduate as an unlikely job applicant, unprepared for the real world," Yard-Friedman said.

An example of this type of progressive DP education is Norman Thomas High School in the middle of Manhattan.

Traditionally a business-oriented school, Norman Thomas has incorporated DP training into its accounting curriculum for almost five years. Nearly a third of the school's student body is majoring in the accounting and DP course of study, school officials noted, and the curriculum description reflects a good concentration of computer studies.

In addition to the basic academic and business courses, one term of RPG-II programming is required as well as one year of Cobol. Students punch up cards for programs they write themselves, work with an IBM System/3 and debug any problems.

A brief survey of Norman Thomas students found that many are interested in continuing their study of computer science after high school and most want to enter the computer field in some capacity.

Murray Schwab, assistant principal and chairman of the accounting/data processing department at the school, has a substantial background in computers and is enthusiastic about the school's program. Schwab learned the DP field on the IBM 1401 computer at the Board of Education and compiled a knowledge of programming and systems over the years.

He created all of the source materials and sample problems for RPG-II instruction for the school and can even do some hardware maintenance on the school's computer.

One of Schwab's objectives is to make Norman Thomas the school for data processing instruction in the city system. Part of his plan will take effect this September when a new three-year curriculum providing a major in DP and a minor in accounting will be started.

The course will offer more machine language instruction, computer literacy, computer operations and assorted field trips and films about the industry. Schwab emphasized that students will have more hands-on time with computers.

Although plagued with teacher shortages and budget problems in allocating equipment, city high schools providing DP education are an untapped source for the computer business marketplace, according to the commission.

It stated that "what schools need most is to make the computer industry aware that resources of trained students exist within the system and that with time, effort and support from the industry these students will make excellent job candidates."

# Group to Award Certificates

PRINCETON, N.J. — The Electronic Data Processing (EDP) Auditors Foundation, Inc. will award the first examination-based certification to more than 400 information systems auditors under a new program sponsored by that organization.

The foundation is the research and education subsidiary of the EDP Auditors Association, Inc., which launched this voluntary certification program to recognize the abilities and competence of Certified Information Systems Auditors. To achieve certification, the auditors must meet experience and/or training requirements and receive a passing score on the six-hour examination prepared by the Educational Testing Service of Princeton, N.J.

The examinations, administered once a year, test candidates extensively in several information systems auditing areas. Further information about the certification program can be obtained from the EDP Auditors Foundation, Inc., P.O. Box 187, Streamwood, Ill. 60103.

# Wang Breaks New Ground

LOWELL, Mass. — Dr. An Wang, chairman of the board and president of Wang Laboratories, Inc., officiated at ground-breaking ceremonies recently for the company's proposed 175,000 square-foot Corporate Technology Center to be located here.

Slated for completion in the spring of 1982, the center will represent an investment by Wang of almost $30 million. It will eventually employ approximately 200 people, who will work to develop proprietary components.

Wang Laboratories currently employs more than 15,000 people in the development, manufacturing, sales and service of word processing systems, small business computers, medium- to large-scale systems, integrated information systems, distributed data processing systems, graphics devices and related peripherals.



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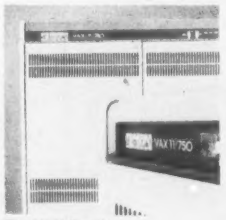
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*To Help Decision Making*

# Joint Nasa-Florida Data Bases Aid Businesses

By Lois Paul
CW Staff

GAINESVILLE, Fla. — Businessmen here — small and large — are getting the information they need to make better day-to-day decisions. The source? Over 250 computerized data bases made available by the State Technology Applications Center (Stac), which is jointly sponsored by the National Aeronautics and Space Administration (Nasa) and the State University System of Florida.

The purpose is to bring technology to business. The state is involved to help businesspeople make good decisions and, ultimately, to help strengthen Florida's economy.

"We promote ourselves as providing information for the problem solvers and decision makers," Ronald Thornton, Stac director, said. The information is bibliographic in nature and can include source data in the form of statistics or text.

"Florida being a rapidly growing state and diverse in its businesses — from tourist to agriculture to high technology — Nasa decided to use the state as an experiment five years ago," Thornton explained.

"Florida is composed of 80% businesses with 100 employees or less." he said. The same distribution is present in the Stac clientele.

Users have included consulting engineers, manufacturers, high-technology companies, banks, international trade importers and exporters and some government employees.

### State Involvement

The state became involved through the university system and matched the $200,000 annual funding from Nasa. It was felt that if a Stac representative could be placed in each of nine state universities, information could be delivered on a local basis.

Six state universities participate in the project through their colleges of engineering and business in Gainesville, Tampa, Orlando, Jacksonville, Boca Raton and Pensacola.

Client fees for services have accounted for 25% of the nonprofit Stac centers' income, Thornton said.

At each office, the area representative has access to information available from more than 250 computerized data bases. These include the Nasa Recon (on-line search and retrieval subsystem) and the Department of Energy Recon data bases.

Also provided are Compendex, the on-line version of the *Engineering Index*; Claims, a patents data base covering general, chemical, electrical and mechanical topics; Inspec, which covers physics, electrical engineering and control engineering; Chemical Abstracts and Petroleum Abstracts; and Biological Abstracts.

Another data base included is Lockheed Corp.'s Dialogue, which Thornton described as a "data base supermarket."

The Stac centers pay a lump sum to some of the companies for access to the data bases and others are charged a fee based on a usage estimate, according to Ramesh Krishnaiyer, director of the Florida Atlantic University center. Searches can vary in cost from a low of $50 to a high of $1,500.

Krishnaiyer said the Florida Stac centers have handled about 1,500 jobs in four years, many which have been from repeat clients. His center uses a Texas Instruments, Inc. TI 745 intelligent terminal to access the data bases via telecommunications.

### Data Base Types

The types of data bases added to the center have depended on the kind of questions received, he explained, noting that the number of questions from lawyers may prompt the center to obtain Mead Data Central's Lexis legal data base system.

Anyone may use the center, Krishnaiyer said, and most contact with clients is handled over the telephone. The first task is to clearly define the user's information needs.

The next step is a search of the available data bases. This is completed by a librarian trained in information access and retrieval. Once the information is obtained, it is marked to help the client. It is printed offline and is ready in one or two weeks, Krishnaiyer said.

The Stac centers also offer a document service to obtain those noted in material the clients receive. There is a $5 fee if the documents are from the universities, Krishnaiyer said, otherwise the center goes through document vendors and costs vary.


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# Flying Tiger Shines Bright With DP Planning

By Bill Laberis
CW Staff

LOS ANGELES — When the U.S. Civil Aeronautics Board (CAB) lifted its regulatory veil from the domestic air freight industry in 1979, the world's largest air cargo carrier realized its data processing capabilities would not support the growth and other changes deregulation would bring.

Under the old regulatory umbrella, dropping some routes while adding others required CAB approval — a minimum six-month process. This meant a carrier had a six-month lead time in which to make managerial decisions anticipating the changes.

With deregulation and the freedom it brought to add and delete routes at will came the need to make quick decisions based on what was happening in the marketplace. Gone was the luxury of a half-year lead time.

### Confusing Array

"We found ourselves at a point where changes in our industry, our management and in DP technology presented us with a confusing array of options," John E. Flynn, senior vice-president of Flying Tigers, said. "Lacking any framework of a plan for information systems, we had studied each option and indulged in 'paralysis by analysis.' "

M. Victor Janulaitis, the company's vice-president of West Coast operations, was more philosophical about the dilemma facing Flying Tigers.

"A company will usually not get into any trouble by doing nothing but sitting back and maintaining the status quo," he said. "But when change is necessary, the risks of doing business increase and it is the management of that change that is the most critical step in the process.

"Rapid advances in computer technology and the rising costs of software development have significantly increased the risks and complexity of these decisions," Janulaitis said. "These risks must be carefully managed, both from an investment standpoint and to achieve the more sophisticated information capabilities that will be demanded in the future."

To begin carving some inroads into their DP problem, Flying Tigers went back to school, Harvard University in particular. From there they were directed to Index Systems, Inc., a DP management consulting firm with close ties to the academic community, Janulaitis said.

A subsequent study of the Tigers' information system showed that:

- Subsystems added by the Tigers over the previous 10 years were written in a variety of programming languages and were not easily accessible for multiple applications.
- Staff expertise was insufficient for developing and implementing new systems and user divisions had little confidence in DP operations.
- The variety of hardware and software being used was restrictive and inadequate for projected future needs.
- Data processing, although deemed vital to the success of the company's operations, had received limited attention, investment and planning from the Tigers' senior management.

Working with company personnel, the Index consulting team identified 47 potential application projects and their levels of priority. They then developed a detailed plan for implementation.

### Centralized Management

Under the plan, Flying Tigers has begun centralizing its data management for all divisions and has added CPUs to provide more capacity for growth, the company said. Application projects are being scheduled to assure completion in manageable phases and delivery of benefits as early as possible.

It is also reorganizing and expanding its information systems department to upgrade project management skills and meet operational requirements more effectively.

"As a result of this effort we now have a plan which aligns our information system objectives with our business objectives so that every decision in managing this essential resource is not a new adventure," Flynn said.

Following deregulation, Flying Tigers acquired Seaboard World Airlines, whose European locations were then tied into the Tigers' automated air cargo system.

"The task of determining the best approach to absorbing Seaboard's data facilities without duplication was made much easier by already having a strategic plan on hand for our own systems," Flynn said.

Currently the company is persuing major DP projects in the areas of customer finance, general accounting, crew scheduling, flight planning, maintenance and engineering and marketing.

But unlike in the past, the company said it now views the effective management of information systems as a corporate asset and a source of competitive advantage that must be managed as carefully as its other resources.

"It would have been inexcusable if we allowed inadequate information facilities to handicap our ability to take advantage of growth opportunities, especially those created by airline deregulation," Flynn said.


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# Managers on the Move

WILLIAM E. WALSH has been elected a senior vice-president at Connecticut National Bank in Bridgeport, Conn., and was named to head the bank's data processing functions.

Walsh has 18 years' experience in professional systems management. Since 1976 he served at Carteret Savings and Loan in Newark, N.J., where he was senior vice-president of corporate services.

Walsh is a graduate of Franklin and Marshall College.

•••

JOHN P. WILKINS has been named director of computer systems and services at the Norton Co. in Worcester, Mass.

Wilkins joined Norton in 1970 as a programming coordinator and has held several managerial positions. He was most recently manager of information services. He succeeds Richard B. Kennedy, who was recently named divisional vice-president and general manager of the Vitrified Grinding Wheel Division.

Wilkins holds a B.S. degree from Boston College.

•••

LAURENCE T. BURDEN has joined the Firestone Tire & Rubber Co. as executive director of management information systems. In this newly created position, Burden will be responsible for MIS and data processing operations, working out of the Akron, Ohio headquarters.

Burden was previously director of MIS services for Northwest Industries in Chicago, where he worked since 1974. Prior to that he was with General Electric Co., where he managed systems support and programming.

A native of North East, Pa., Burden holds a B.S. degree in mathematics from Grove City College, an M.S. degree in the same from Indiana University and has done post-graduate work at Pennsylvania State University.

•••

JAMES G. BIRD has been appointed manager of information planning in the systems and data processing area of General Mills Consumer Foods. In this post, he will be responsible for information systems long-range planning, primary contact with vendors and provision for MIS and related services to subsidiary companies.

Bird joined General Mills in 1973 as manager of budgeting and costing for the Smiths Food Group subsidiary in London. Three years later he was named manager of information systems and computer services for Smiths. In 1978 he became project manager at the parent company's headquarters in Golden Valley, Calif., and in 1980 was named group systems planner.

Bird attended Highbury College, London, where he majored in banking and monetary practice. He is a qualified member of the UK accounting profession (Acma) and was engaged in post-graduate study in management accounting and information systems prior to moving to the U.S.

## Martin to Speak At SMIS Meet Set in Denver

DENVER — Author and consultant James Martin will headline the 1981 Annual Conference of the Society for Management Information Systems (Smis), to be held here Sept. 13-16.

Martin will be joined on the program by several senior information executives who will address new challenges facing the profession.

The theme of the conference is "People, Performance, Productivity: The New MIS Agenda." Martin will lead a half-day session on the role of the MIS executive in which he will underscore MIS responsibilities and forecast the changes that MIS professionals will face over the next 10 years.

Also on hand will be Joji Arai, chief U.S. representative of the Japan Productivity Center, who will keynote the conference.

Complete details on registration are available from Evelyn Bickley at Smis headquarters, 111 E. Wacker Drive, Chicago, Ill. 60601.


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The new HP 2626 display station will give you a view of your computer system you've never seen before.

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# Execs Told to Avoid 'Attila the Hun' Approach

By Lois Paul
CW Staff

LINCOLNSHIRE, Ill. — How many times do you use the words "should," "ought" and "must" in your average day?

Far too often, especially with business subordinates, and they are helping to break down communication within our offices, Dave Yoho, president of the Surfa-Shield Institute, said here recently.

Discussing "How to Thrive, Not Just Survive in the Stress Arena" at the Executive Communication conference sponsored by Pansophic Systems, Inc., Yoho noted that people stubbornly stick with behaviors learned early in their lives, even when these are counterproductive.

Executives generally sit behind large desks and talk with subordinates facing them across their desks, just as fathers in most families sat at the head of the table and teachers faced students across a large desk. "What we need is more concentration on behavioral skills," Yoho said. "If you want to get the most out of people, you should get people to be open."

He said the best way for executives to foster better communication within their offices is to get out from behind the desk. If they cannot go this far, he suggested they let people sit to the right or left of their desks.

Interaction with human beings differs with the use of different words, Yoho explained, noting that words such as "should," "ought" and "must" tend to berate and destroy subordinates, causing stress and, ultimately, decreasing productivity.

Another expression that should be removed from the language is "I'm sorry," Yoho said, noting that it can be replaced with "I regret." He described the situation in which there is a problem within a large organization and the "big boss" calls in his subordinate to harangue him about it.

The employee is forced to admit he is sorry about the mistake, which places guilt and stress on him that he then transfers to his subordinate. The cycle runs on until it reaches the lowest echelon employee's home and, eventually, returns to cause problems within the organization.

"It is a reciprocal cycle that stems from the words of our language," he said. "All intimidation starts with words. It wipes out all of your objectives. All you relate to is guilt and fear."

The way to approach an employee with a problem, according to Yoho, is to put him at ease and to indicate you are sincerely interested in hearing how he is feeling.

### Subdued Emotions

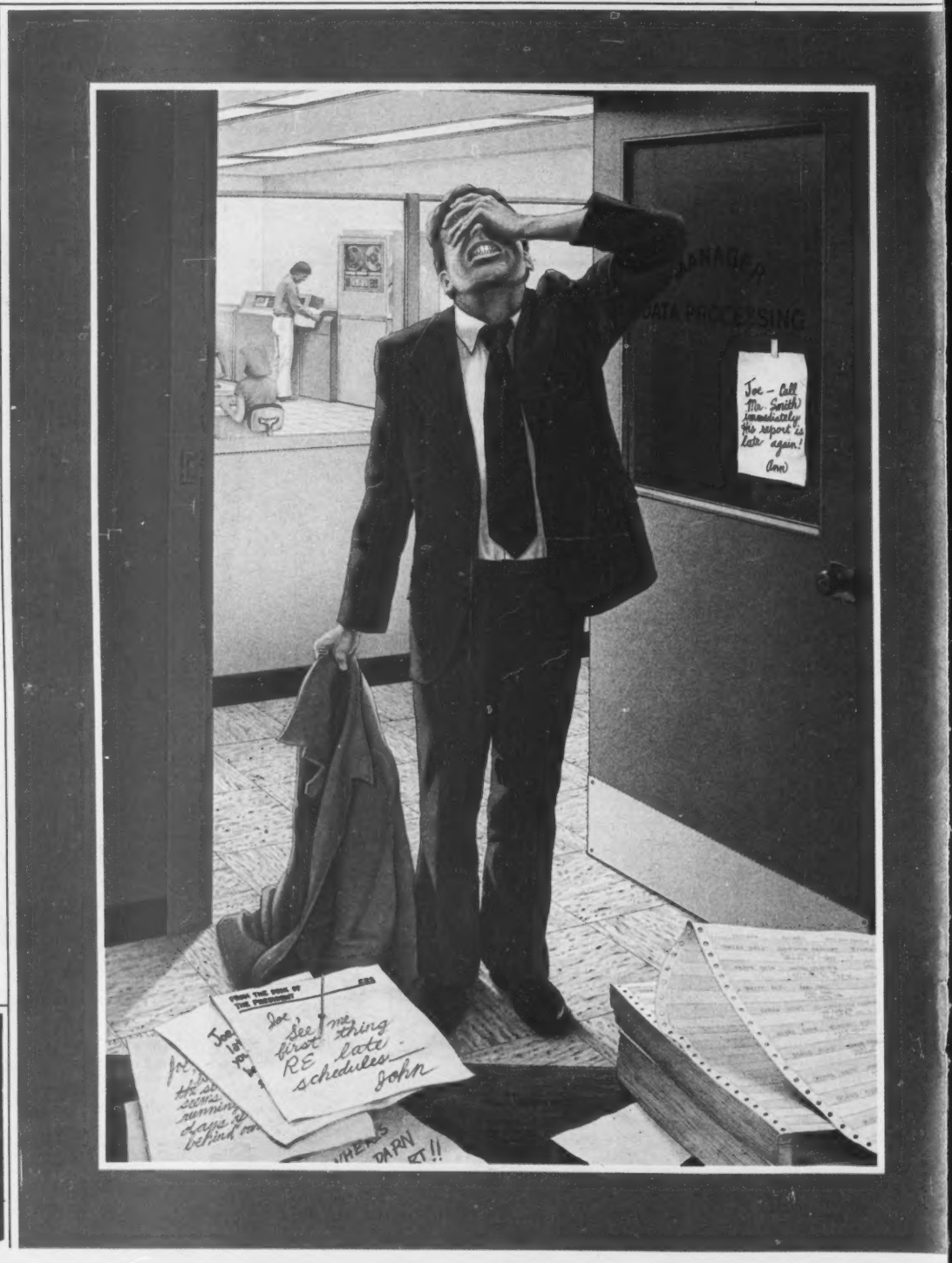
"Most people are never given the right to tell how they feel. People subdue their emotions and that is where stress comes from," he said.

He pointed to the myriad of social problems in this country as proof that "we have not learned openness."

Most bosses tend to use an "Attila the Hun" approach of power by force when dealing with subordinates. The cycle begins with the person feeling inadequate, getting attention which gives him a sense of power and then using this power to obtain revenge, according to Yoho. To remove stress in the office, the executive needs to put his own feelings below those of the subordinate's.

"Power can only come from being powerful within oneself, controlling oneself. It does not come from controlling another human being," he explained.

"Somewhere within your organization is someone who is hurting and they will give you behavior you won't know how to deal with until they stop hurting," he said.




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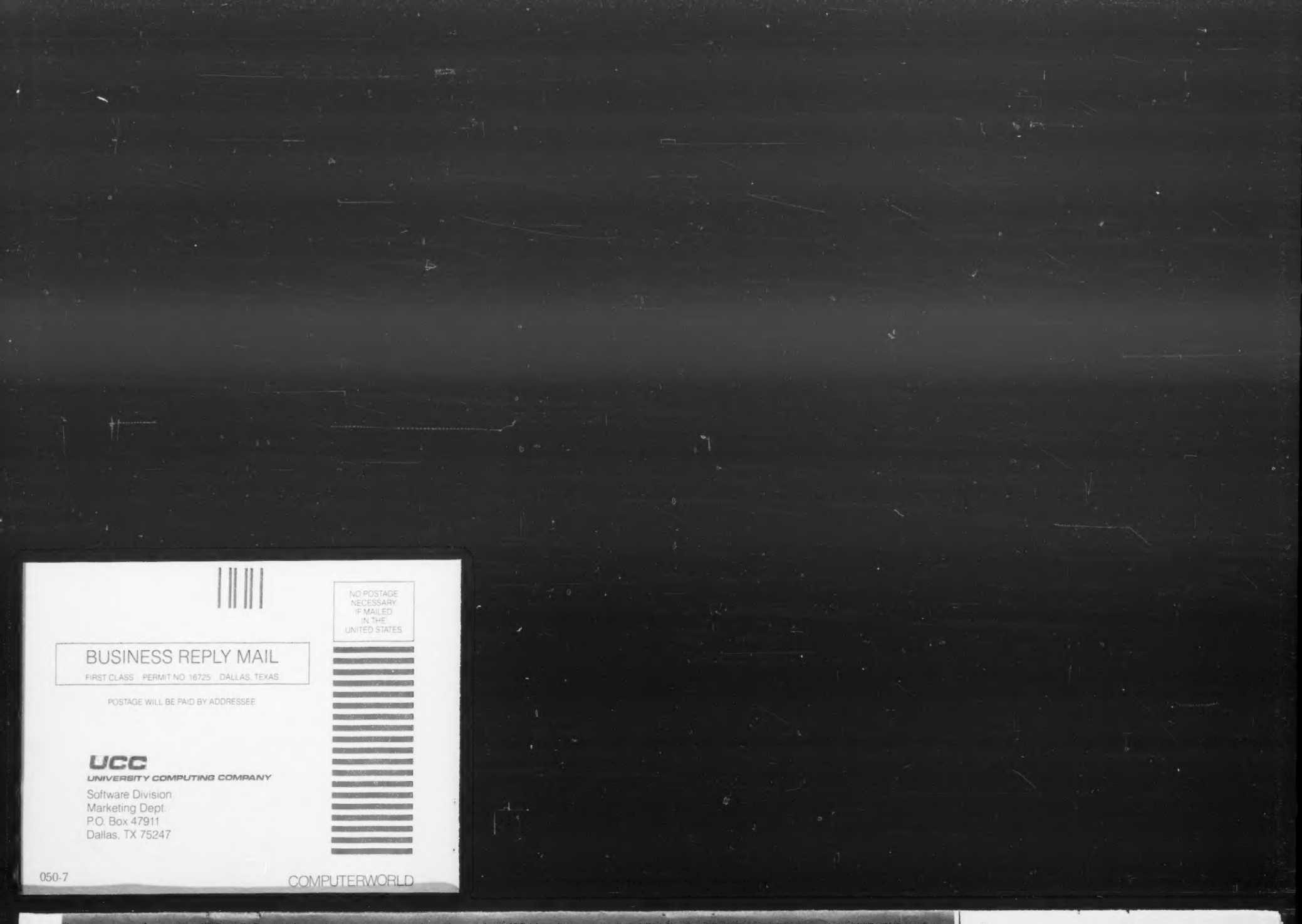
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*Cops and Auditors*

# Exec Warns Computer Crime Already Here

By Lois Paul
CW Staff

LINCOLNSHIRE, Ill. — Computer crime should no longer be treated as a crime of the future because it is here today, Robert Briggs, director of agents and national accounts for Pansophic Systems, Inc., said at the Executive Communications conference the company sponsored here recently.

According to FBI reports, the average bank robbery involves $3,200; the average bank fraud nets $23,500; but the average computer crime involves $500,000. The identification and prosecution of computer crimes differs under current state and federal laws, Briggs said. No one law covers this area nationwide.

It is therefore necessary for the DP auditor, whom Briggs described as a "policeman" of internal controls, to be familiar with these various laws.

### Controls Stressed

Briggs stressed the importance of establishing controls that limit access to data and provide audit trails. Laws such as the privacy act, the growth of the DP industry and the use of remote-access capabilities have increased the need for security and control of data, he said.

One DP auditor defined his job as establishing an internal control system that would let his upper management know they are safe from going to jail, Briggs said, noting that it is ultimately the responsibility of management to ensure the provision of sufficient standards.

"Information is the asset and it is necessary to control this asset to control your company," Briggs explained. He noted that many systems have little or no documentation or the documentation is inadequate or not updated. Therefore, the program has to be rewritten to be usable.

It is the DP auditor's job to control information, he said, and to determine that management understands and supports the controls and users understand their responsibilities.

### Planning Needed

Briggs cited the need for establishing short- and long-term plans, including procedures for periodic updating of these in light of company objectives. The plans also should provide a means for measuring performance, he said.

A backup plan, in the event of major failure of a system, should involve risk analysis and provide facilities, documentation, procedures and adequate testing, according to Briggs.

Security of direct data should involve protection against malicious destruction or loss, Briggs explained. The risks involved in the use of remote terminals can be overcome by the use of terminal users manuals, fixed term input formats, data balancing controls, message numbering, logging and the centralized control of networks, he suggested.

The greatest risk is unauthorized access, by which a system may be exposed to fraud, master files could be stolen or destroyed or the privacy of data may be compromised.

"The tools and capabilities for control are available now," Briggs said. He emphasized that management's commitment to accomplishing these controls is essential.

Briggs criticized the Federal Computer Protections Act, which he said has undergone major amendments and is making its way through Congress one more time. Under the act, anyone who attempts to damage or tamper with computer equipment or software could be found guilty of committing a felony punishable by five years imprisonment or up to $50,000 in fines.

The jurisdiction of the act is too restrictive and it will be obsolete in a few years, he maintained.


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# Larry Long's List of Professional Societies

**• GOVERNMENT MANAGEMENT INFORMATION SCIENCES GROUP (G-MIS)**

*Purpose and Objectives:* G-MIS is local (mostly city and county) government agencies organized in 1971 to:

1. Foster a unified effort to integrate and disseminate their respective research and design efforts in the area of automated information science.

2. Promote standard systems that can be shared or transferred.

3. Present a unified voice to all suppliers of hardware, software and related data processing services.

The agency delegate to G-MIS is usually the manager of data processing, but G-MIS invites the participation of all levels of data processing personnel by granting all rights and privileges to any such staff of a member agency. G-MIS meets once a year in conference, but affiliated state chapters usually meet at least twice a year.

*For More Information:* Bob Hackett, City Water Board, P.O. Box 2449, San Antonio, Texas 78298.

**• HUMAN RESOURCE SYSTEMS PROFESSIONALS (HRSP)**

*Purpose and Objectives:* The Association of Human Resource Systems Professionals is a nonprofit mutual benefit corporation comprised of personnel, data processing and other professional individuals who have varied interests with the many aspects of human resource systems. Such individuals represent many and varied industries in terms of business line, size and geographic location. The primary purpose of HRSP is to provide a forum to exchange experiences, acquire information and discuss common needs or problems relating to human resource systems. Active participation will therefore enable members to:

• Significantly contribute to the success of their respective organizations by acquiring knowledge that will enhance their ability to respond to user needs and expectations.

• Contribute to the advancement of the state of the art in human resource systems.

• Serve as a unifying force in defining and leading this rapidly evolving field of management.

HRSP began as an informal local San Francisco Bay area group in 1978. As interest in the group expanded, the original group decided to formalize and operate as a national organization. HRSP was incorporated in 1980.

Membership is open to personnel, data processing and other professionals or interested persons concerned with the development, maintenance and operation of human resource systems.

Association members participate in the following types of activities: newsletters, education sessions and workshops, national conferences, establishing a resource network of professionals with similar human resource systems needs and interests and sponsoring speakers for special occasions.

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*Larry Long is compiling a list of professional DP/Computer societies and organizations. To be included, societies and organizations should send a brief description of their purposes and objectives to Larry Long, Editorial Department, Computerworld, P.O. Box 880, Framingham, Mass. 01701.*

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*For More Information:* Sidney H. Simon, Bechtel Power Corp., 50 Beale St., P.O. Box 3965, San Francisco, Calif. 94119.

**• INFORMATION RESOURCES MANAGEMENT ASSOCIATION (Irma)**

*Purpose and Objectives:* Irma is a national cooperative association for member associations and is headquartered in the Washington, D.C., area. Its purpose is to assist other associations with the process of office automation by:

• Educating the member association's staff to data processing ideas.

• Defining the member association's automation needs.

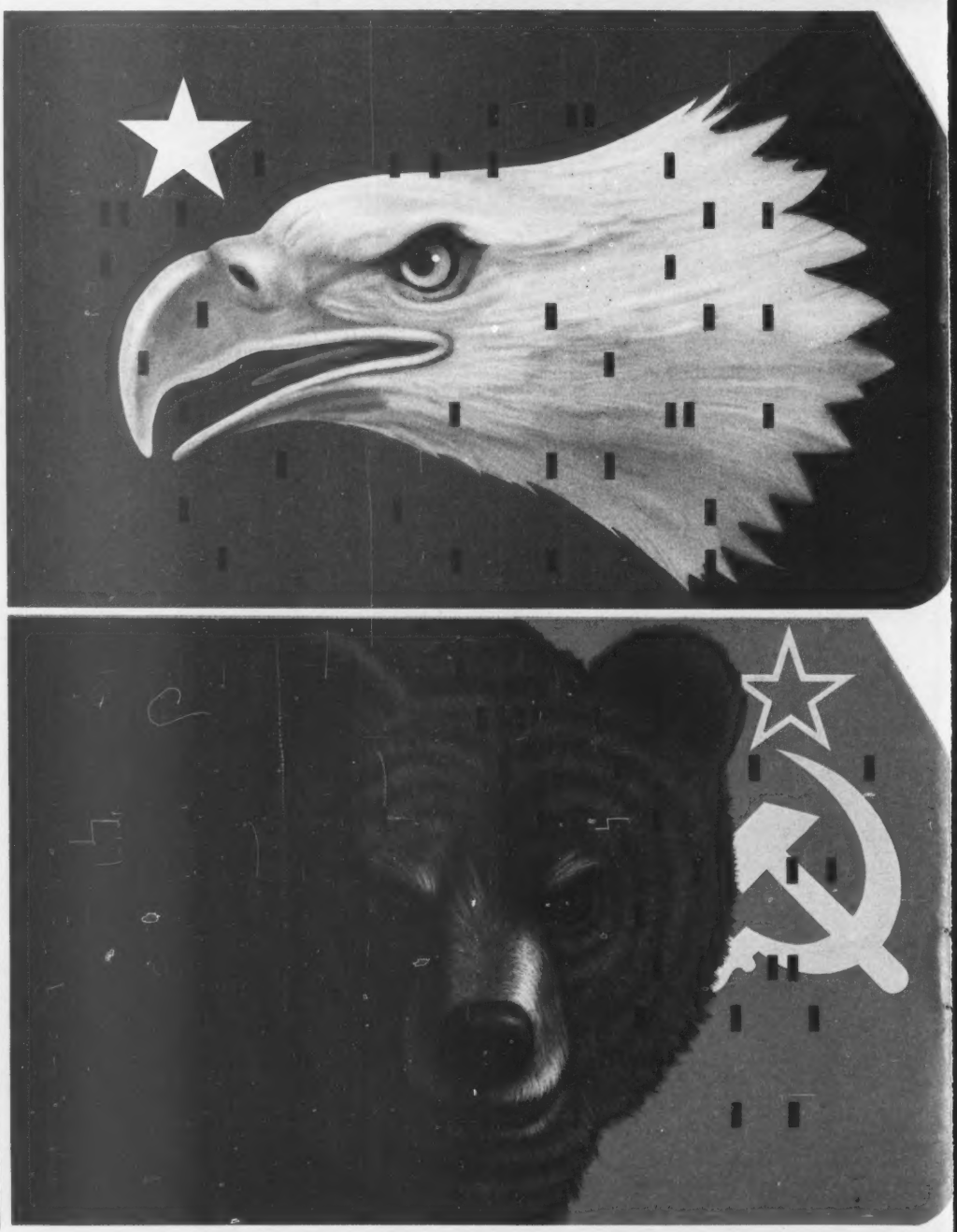
• Keeping the cost down on automation hardware and software for member associations

• Planning today's automation design to integrate smoothly into tomorrow's needs.

Irma achieves these objectives by offering "The Guide to Automation for Associations"; seminars for the member association's employees; a bimonthly newsletter; discounts on purchases of data/word processing systems for member associations; use of software packages designed by Irma; library of software programs owned and used by the member associations; and a clearinghouse for information regarding association-related products.

Membership in Irma is open to any association representing an industry, trade or concern of the people of the U.S.

*For More Information:* Information Resources Management Association, Suite 312, 912 Thayer Ave., Silver Spring, Md. 20910.



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'From the looks of things, this is going to be far out!'

# What Groups Police Leasing?

**Q Your compilation of professional DP/computer societies and organizations is a very informative service.**

**Related to this is my desire to obtain information on trade groups that function to ensure membership integrity and professionalism in the area of third-party computer transactions.**

**Two such organizations mentioned in a recent *Wall Street Journal* article are the Computer Dealers Association and the Computer Lessors Association.**

**If you could provide the mailing addresses of these two organizations and others with similar interests, I would be greatly appreciative.**

A The addresses are 5635 W. Douglas Ave., Milwaukee, Wis. 53218 and 1212 Potomac St., N.W., Washington, D.C. 20007, respectively. I invite representatives of appropriate organizations to submit more detailed descriptions for publication in *Computerworld*.

**Q One of the biggest problem areas I constantly see in your column is the need for career counseling. Certainly the questions you've presented to date seem representative of what occurs in the "real" world.**

**However, your management information systems (MIS) functions discussion [CW, March 2] seems to miss the target slightly. We've placed MIS managers in small- to medium-sized companies that combine roles of MIS manager *and* accounting manager.**

**These people often have had, at one time or other, either one or the other title. In fact, this combination seems to offer the best value for cash-starved, fast-growth organizations.**

A My March 2 discussion dealt only with those positions usually associated exclusively with the information services function. The MIS/accounting manager combination is becoming more popular. However, those corporations considering a combination position should thoroughly investigate potential candidates to ensure that their allegiance and/or interest is not skewed one way or the other. Thanks for your input.

## QA Turnaround Time
By Larry E. Long

**Q You stated that users should be charged for actual data processing costs. Our company does this by prorating the cost of a piece of equipment (divided by its expected life) among the users of that equipment.**

**Some analysts, therefore, are hesitant about using some new efficient devices because the charge to the user will be considerably higher than using older ones that are already heavily used. Isn't this self-defeating on a company-side basis since it would be advantageous to encourage the use of better devices? Is there a better way to prorate hardware cost?**

A The objective of a cost allocation and control system is to recover costs through efficient utilization of the corporate information services resources. New capabilities and methods are constantly changing the complexion of the resource pool.

The services rate structure must be flexible enough to enable service costs to be revised to encourage an optimal use of all resources, including hardware.

**Q I am presently writing a novel focusing on computer crime. Any tips, information or assistance would be greatly appreciated.**

A An array of complex computer-related criminal scenarios will fascinate even the most ardent fans of mystery and intrigue, but to be commercially successful, you must remember your audience. The vast majority of the potential market will have little knowledge of computers or computer systems. The use of jargon is necessary to create the atmosphere for computer crime, but should be limited to understandable or easily definable terms. A plot that is understood only by seasoned MIS professionals loses its mass market appeal and, therefore, any chance of publication.

You may have an exciting plot and intense characters, but the book won't make it past the first cut if you don't exhibit good writing style. For this reason, I would suggest that you obtain professional editorial assistance before submitting your manuscript to publishers for consideration.

---

*Long is a professor at Lehigh University, a DP consultant and author.*

*Have a question? Send it to Larry Long, Editorial Department,* Computerworld, *Box 880, Framingham, Mass. 01701.*


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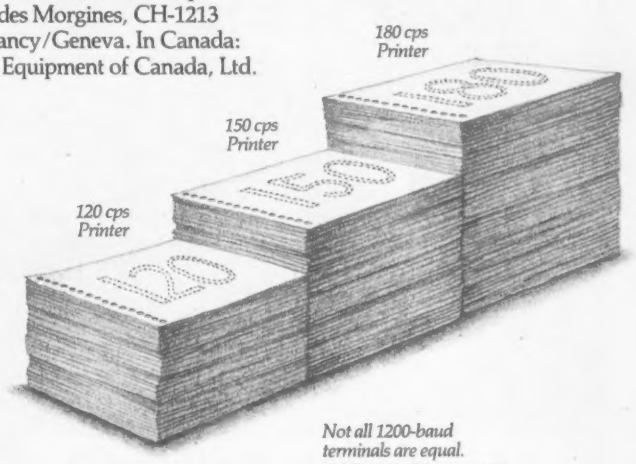
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To buy the DECprinter III, contact your Digital terminals dealer. For the names of dealers nearest you, call 800-225-9378 (outside the Continental U.S. and in Massachusetts call 617-467-7068) between 8:30am and 5:00pm Eastern time, or contact your local Digital sales representative.

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# Calendar

Aug. 2-5, Keystone, Colo. — **Keystone IV — Automated Mapping.** Contact: Henry A. Emery, Kellogg Corp., 5601 S. Broadway, Littleton, Colo. 80121.

Aug. 2-6, New York — **Micru International Summer Conference.** Contact: Norwin A. Merens, Micru International, 4300-L Lincoln Ave., Rolling Meadows, Ill,. 60008.

Aug. 2-15, Edmond, Okla. — **Eighth Annual Computer Educator's Institute.** Contact: *Interface*, 116 Royal Oak, Santa Cruz, Calif. 95066.

Aug. 3, Boston — **Management Overview of Data Structured Systems Development.** Contact: Karen Howard Brown, Ken Orr and Associates, Inc., 715 E. 8th, Topeka, Kan. 66607. Also being held Aug. 5 in St. Paul, Minn. and Aug. 7 in San Francisco.

Aug. 3-4, Boulder, Colo. — **Telematics.** Contact: Cross Communications Co., Suite B, 934 Pearl, Boulder, Colo. 80302.

Aug. 3-4, Chicago — **User Documentation.** Contact: Registrar, American Institute for Professional Education, Carnegie Building, 100 Kings Road, Madison, N.J. 07940. Also being held Aug. 10-11 in Long Beach, Calif., Aug. 17-18 in Saddlebrook, N.J. and Aug. 24-25 in Seattle, Wash.

Aug. 3-4, Los Angeles — **Service Analysis.** Contact: Performance Development Corp., 1101 State Road, Building N, Princeton, N.J. 08540.

Aug. 3-5, San Francisco — **Developing EDP Systems for General Ledger and Financial Statement Preparation.** Contact: American Management Associations, 135 W. 50th St., New York, N.Y. 10020. Also being held Aug. 17-19 in Boston.

Aug. 3-5, New Orleans — **Thirteenth Annual Meeting — The National Association for State Information Systems.** Contact: Judie Parish, Executive Assistant, National Association for State Information Systems, P.O. Box 11910, Iron Works Pike, Lexington, Ky. 40578.

Aug. 3-5, New York — **The Automated Office.** Contact: National Institute for Management Research, Department B-PR, NIMR Seminars, P.O. Box 3727, Santa Monica, Calif. 90403.

Aug. 3-5, New York — **Electronic Mail.** Contact: National Institute for Management Research, Department M, P.O. Box 3727, Santa Monica, Calif. 90403.

Aug. 3-5, Boston — **Data Processing Operations Management.** Contact: The University of Chicago, Center for Continuing Education, MC Seminar Division, 1307 E. 60th St., Chicago, Ill. 60637.

Aug. 3-5, New York — **Office of the Future — Today.** Contact: Registrar, National Institute for Management Research, P.O. Box 3727, Santa Monica, Calif. 90403.

Aug. 3-7, Dallas — **Siggraph81 — Eighth Annual Conference on Computer Graphics and Interactive Techniques.** Contact: Siggraph 81, Conference Office, One Illinois Center, 111 E. Wacker Drive, Chicago, Ill. 60601.

Aug. 3-7, Washington, D.C. — **Distributed Processing — Concepts and Techniques.** Contact: Director, Continuing Engineering Education, George Washington University, Washington, D.C. 20052.

Aug. 3-7, Santa Cruz, Calif. — **Functional Programming.** Contact: Adele Wood, University of California Extension, Carriage House, Santa Cruz, Calif. 95064.

Aug. 3-7, Fontainebleau, France — **Ninth International Business School Computer Users Group.** Contact: Paul Gruendemann, University of Southern California, School of Business, Los Angeles, Calif. 90007.

Aug. 4-5, Washington, D.C. — **Principles of Data Communications.** Contact: Registrar, Cincom Systems, Inc., 2300 Montana Ave., Cincinnati, Ohio 45211.

Aug. 4-6, Chicago — **Data Entry Productivity Seminar.** Contact: "Data Entry Digest," 10522 Ridgeway Drive, Santa Ana, Calif. 92705.

Aug. 4-6, New York — **SAS CPE Course.** Contact: SAS Institute Inc., P.O. Box 8000, Cary, N.C. 27511.

Aug. 5-7, New York — **Automated Office Implementation.** Contact: National Institute for Management Research, Deparment PR, NIMR Seminars, P.O. Box 3727, Santa Monica, Calif. 90403.

Aug. 5-7, Chicago — **Implementing Computer Based Human Resource Systems.** Contact: The University of Chicago, Center for Continuing Education, MC Seminar Division, 1307 E. 60th St., Chicago, Ill. 60637. Also being held Aug. 19-21 in New York.

Aug. 6-7, Los Angeles — **Distributed Data Processing.** Contact: Performance Development Corp., 1101 State Road, Building N, Princeton, N.J. 08540.

Aug. 6-7, Washington, D.C. — **Software Management.** Contact: Educa-


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| Washington, DC | WDCA | 20 | Saturday | 12:00 Mid. |
| Philadelphia | WTAF | 29 | Monday | 10:30 PM |
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# Calendar

tion Foundation Data Processing Management Association Conferences, Department SMC, Suite 1016, 5959 W. Century Blvd., P.O. Box 91295, Los Angeles, Calif. 90009. Also being held Aug. 31-Sept. 1 in Boston.

Aug. 6-7, Washington, D.C. — **Managing Documentation & Documentation Standards.** Contact: Carnegie Press, Center for Documentation Resources, 100 Kings Road, Madison, N.J. 07940. Also being held Aug. 13-14 in Philadelphia, Aug.20-21 in Tampa, Fla., Aug. 24-25 in Newport Beach, Calif. and Aug. 27-28 in San Francisco.

Aug. 6-7, New York — **In-House Consulting Skills for Systems Analysts.** Contact: New York University, School of Continuing Education, Division Career and Professional Development, Seminar Division, 326 Shimkin Hall, New York, N.Y. 10003

Aug. 6-7, Orlando, Fla. — **Software Acquisition Management.** Contact: Data Processing Management Association, Education Foundation Seminar, P.O. Box 9125, Department SAM, Los Angeles, Calif. 90009. Also being held Aug. 24-25 in Washington, D.C.

Aug. 10-11, San Francisco — **Word Processing for the Data Processsing Manager.** Contact: Registrar, Carnegie Press, 100 Kings Road, Madison, N.J. 07940. Also being held Aug. 13-14 in Newport Beach, Calif.

Aug. 10-14, Cambridge, Mass. — **Media Technology/The Human Interface With the Information Sciences.** Contact: MIT, 77 Massachusetts Ave., Cambridge, Mass. 02139.

Aug. 10-14, Dallas — **Structured Systems Design/Structured Program Design Combined Course.** Contact: Karen Howard Brown, Ken Orr and Associates, Inc., 715 E. 8th, Topeka, Kan. 66607. Also being held Aug. 24-28 in Topeka, Kan.

Aug. 10-14, Los Angeles — **Reliability and Life Testing.** Contact: Short Course Program Office, 6266 Boelter Hall, University of California Los Angeles Extension, Los Angeles, Calif. 90024.

Aug. 10-14, Santa Cruz, Calif. — **Operating Systems.** Contact: Adele Wood, University of California Extension, Carriage House, Santa Cruz, Calif. 95064.

Aug. 10-14, Ann Arbor, Mich. — **Contemporary Data Communication Networks: Planning Analysis & Design.** Contact: University of Michigan, Continuing Engineering Education, 300 Chrysler Center, North Campus, Ann Arbor, Mich. 48109.

Aug. 10-14, Washington, D.C. — **Software Engineering and Quality Assurance: A Statistical Approach.** Contact: Director, Continuing Engineering Education, George Washington University, Washington, D.C. 20052.

Aug. 16-19, New Orleans — **Urisa 81 — Information Systems and All That Jazz.** Contact: Urban & Regional Information Systems Association, Suite 300, 2033 M St., N.W., Washington, D.C. 20036.

Aug. 16-29, Amelia Island, Fla. — **Management Growth Program.** Contact: Information Management Program, Program Manager, Amelia Program, 2800 Scott Mill Terrace, Jacksonville, Fla. 32217.

Aug. 17-18, Chicago — **Strategic Planning for Information Resource Management.** Contact: Performance Development Corp., 1101 State Road, Building N, Princeton, N.J. 08540.

Aug. 17-19, Atlanta — **Developing Computer-Based Marketing Information Systems.** Contact: American Management Associations, 135 W. 50th St., New York, N.Y. 10020.

Aug. 17-20, Atlanta — **Apco Calls for Advanced Technology Vendor Papers.** Contact: Mal Gurian, Committee Chairman, Aerotron, Inc., 317 Harrington Ave., Closter, N.J. 07624.

Aug. 17-20, Raleigh, N.C. — **VSE Class with Handson Lab.** Contact: National Advanced Systems, 1155 Kildaire Farm Road, Cary, N.C. 27511.

Aug. 17-21, Cambridge, Mass. — **Media Technology/On Optical Videodiscs, Their Production and Application.** Contact: Director of Summer Session, MIT, 77 Massachusetts Ave., Cambridge, Mass. 02139.

Aug. 17-21, Santa Cruz, Calif. — **Computer Security.** Contact: Adele Wood, University of California Extension, Carriage House, Santa Cruz, Calif. 95064.

Aug. 18-19, Washington, D.C. — **Understanding and Management of Word Processing Information Systems.** Contact: Registrar, Cincom Systems, Inc., 2300 Montana Ave., Cincinnati, Ohio 45211.

Aug. 18-20, Boulder, Colo. — **1981 International Symposium on Electromagnetic Compatibility.** Contact: Charlotte Tyson, Registration Chairwoman EMC 81, IBM, 59Z/025-1, P.O. Box 1900, Boulder, Colo. 80302.


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# EDITORIAL

## Changing With the Times

Changing with the times is what data processors do best, by virtue of being in a vibrant, ever-evolving industry wherein he who hesitates is often lost. It is a trait that has been exhibited throughout history by men and women of vision who recognized the need for something better and the possibility of filling that need.

Not so the members of some of today's industrial disciplines, even some that rely heavily on computers to do their work. Witness specifically the Federal Aviation Administration (FAA), whose air traffic controllers have long demanded and been denied state-of-the-art computer equipment with which to do their life-or-death-level work.

As *Computerworld's* "History of Computing" series [CW, June 29] has shown and will continue to demonstrate, the earliest pioneers in the development of mechanical calculation — leading ultimately to the invention of the computer — were not ones to balk at a challenge or to shy away from a look into the future.

Today's pioneers in new computing technology have the broad vision of a Blaise Pascal, and that is why they will succeed in developing more and more astonishing and useful devices for life now and in the future.

The FAA, on the other hand, is a body that has demonstrated its apparent desire to remain mired in the technology of the past, without regard for the real dangers inherent in that policy. With millions of passenger lives in controllers' hands every day, the FAA should seriously rethink its present plan.

While a new computer system is due to be in use by 1990, agency projections show that the present system will be overloaded by increasing air traffic by that time. The FAA should take an important lesson from history and set its sights squarely on the future and not be content with the ways of the past.




# DATA PAST

### Five Years Ago
### July 2, 1975

WHITE PLAINS, N.Y. — Increased control storage that permits more supervisory functions to be resident within the system was the key to the increased performance levels of the 370/138 and 370/148 announced here by IBM.

The systems perform instructions 26% to 43% faster than their respective predecessors, the 370/135 and 370/145, primarily because of an extended control program support implemented in the control storage, the firm said.

— — —

CLEVELAND — Despite its name, the Consumer Communications Reform Act of 1976 was predicted to have no direct effect on the cost of phone service to the average residential user.

This was the consensus at a recent debate on telecommunications policy held here for national consumer group representatives.

### Ten Years Ago
### July 7, 1971

ATLANTA — Charging "false and fraudulent misrepresentations" and "erroneous processing," a customer of a Control Data Corp. service center filed an $8 million malpractice suit against the mainframe manufacturer.

The suit alleges the "misrepresentations" included CDC's claim that the Cybernet time-sharing system had adequate backup, and that CDC's cost for computerized billing work would be less than that of a service bureau previously used by the customer.

— — —

BOSTON — Service bureaus and in-house computer centers that did billing for retail merchants may have been setting up those merchants for large lawsuits, according to William McDonough, a Federal Trade Commission staff attorney.

One such law suit was said to cost the Chemical Bank more than $13 million.

# LETTERS

### Burroughs on Swapping

*Computerworld's* article, "Burroughs Offering Users 'Buy-Back' Deals on B800s" [CW, June 8], contains several misleading statements.

It should be understood that it has been and continues to be Burroughs Corp. practice to actively pursue an appropriate program of systems upgrading with its users. In pursuing that program, we are very conscious of and sensitive to instances that allow us to meet our customers' needs more effectively.

Our offer to Robert Hammons to replace the B800 with a B900 was *not* without additional payment. It should also be noted that, contrary to the statement in the article, the customer who used Caprock software was charged a differential of almost $30,000 for his B900, as compared with the $5,000 stated in the article.

CW's unsubstantiated report of "swapping" B800s for B900s at two accounting firms in Southern California served only to further confuse readers and, again, misrepresent the facts. We have not installed a B900 at any accounting firm in that area.

Fred R. Meier
President,
Business Machines Group
Burroughs Corp.
Detroit, Mich.

### Series/1 Testing

The criticism we've received of the software used in our benchmark testing the IBM Series/1 "IBM Series/1 Test Snags Preclude Comparisons" [CW, June 15] points up one of the critical areas for such testing — selection of the operating system and language. These create the environment in which the machine performs its tasks and can drastically alter performance. For the same reason, benchmark testing is particularly useful in that it reveals such effects.

In all our testing, a standard offer is made to the manufacturer to assist Association of Computer Users' consultants in picking the best language and operating system for the equipment and in optimizing the program statements for the system.

Unfortunately, IBM declined to provide us this kind of help. Although they did provide some casual advice when trouble arose, it was not enough to straighten everything out.

To answer one question that might arise, we don't normally test hardware from one firm combined with software from another — mainly because hardware vendors usually provide us with a complete, off-the-shelf system available in a single package.

As emphasized in my *Computerworld* article, the Series/1 is a very capable system. In retrospect, the operating system and language chosen — which IBM still markets — may not have put the system in the best possible light. However, IBM chose not to participate, thus forcing us to choose the software without the benefit of their advice and support.

Again, we extend to IBM the offer to participate in this activity to help ensure that their equipment will be fairly and accurately represented in the future.

Hillel Segal
President
Association of Computer Users

### Disservice to Utah?

I'm afraid *Computerworld* may have committed a disservice in the article on the audit of Utah's State Information Service Center [CW, June 15]. True, you did state more than once that the period in question (1976-79) was in the past, but the tone of your report gives the impression that it continues to this day.

Nothing could be further from the truth. The problems were recognized

*(Continued on Page 34)*

HUMAN CONNECTION/Jack Stone

# Dedication Essential to Executive Vision

*History has recorded that a common characteristic of great leaders of industry, science and government is long-term dedication to the implementation of the principles they espouse. Kenneth Blythe, a senior DP manager in the federal government, last week commented on the development of DP personnel. This week, he responds to my questions about executive dedication.*

Blythe: It's been my experience that the high turnover of top executives — less than two years in office — does not allow sufficient time for them to develop "dedication" to the DP function.

There is a widespread attitude that managers are "professionals" who should be able to manage anything and that they are as interchangeable as parts of automobiles. Therefore, they are switched around often.

There are several problems with this philosophy.

First, new managers tend to focus attention on the few projects that demonstrate unusual management prowess or a sense of the dramatic, but do not necessarily provide continuity in the DP investment of the organization.

Second, the new manager comes to office intent on the redistribution of resources, such as personnel, finance and facilities.

Often these measures are taken with inadequate consideration of the information system infrastructure that supports the organization. Specifically, this manager lacks the organizational experience — and desire, if he or she knows that position tenure is short-lived — to bring about the long-term structural changes required for competitive superiority.

Without this experience and a long-term commitment to the future, it is difficult for top-level executives to develop a new vision.

**Would you expand on your notion of "vision?"**

Senior managers operate at three levels: First, short-term, where they concentrate on the allocation of existing resources. Second, medium-term, where they plan structural changes in the enterprise to replace labor-intensive activities with capital. Third, long-term, where managers are expected to plan new products and processes that will provide their organization with competitive leadership.

The term "plan" is really understating what's required at the second and third levels.

More appropriate is the term "vision." Executives need to "envision" future product and processes in the context of the long-range goals of the organization — and then stick to their visions until they are implemented. Henry Ford, Werner von Braun and many other great executives succeeded with high-risk propositions by projecting a vision of a new product and, more importantly, remaining dedicated to the vision long enough to see it through to reality.

**Could you comment further on how executive turnover relates to the DP department?**

Frequent changeovers of executives result in shifting policies — and changes to the structure of organizations as they evolve over time. Most executives do not recognize that such a structural change, of which DP systems development is only one example, represents a long-term endeavor, one which requires vision, meticulous planning and careful implementation.

The effectiveness of these structural changes is directly dependent upon the stability and support — that is, dedication — of the top executives of the organization. An executive who has a vision, but not the capacity to carry it through its implement stage, is merely wasting time; a vision is nothing more than a dream if it is not hammered into a product (or process) that works, and executive turnover precludes the dedication required to hammer dreams into reality.

**But why can't the manager delegate responsibility for follow-through? Is the manager's physical presence necessary for success?**

It's human nature that the inheritor of a large complex development project rarely gives the project wholehearted endorsement. This person does not generally have the same vision as the project initiator and therefore cannot sustain the leadership necessary to guide its development. As a result, the implementation deviates from the intention of the initiator. This breaks the fabric of development and can destroy the continuity of the system that was planned. To achieve the successful implementation of a complex DP system, it is essential that the executive who approved the project stay on the job until it is completed.

TAYLOR REPORT/Alan Taylor

# Can Simpler Computers Also Be Better?

Computer progress for about 20 years now has come from adding new instructions. The underlying philosophy has been that such additions permitted the user to have much more power and, at the start, the rationale was undoubtably valid. However, the real reason such an approach worked lay in the hardware then in use.

There were two major types of hardware — one with large but rotating memories, and one with small memories backed up by some rotating device. In the first case, a complex instruction required only one instruction extraction, while simple instructions required two or more. Most of the time involved in the instruction extraction consisted simply of waiting for the instruction to come under the disk or drum heads. This waiting often took much longer than the actual instruction execution, so, operationally, the use of complex instructions did help.

In the second case, the number of instructions that could be stored in those early core memories was very, very limited. Overlay mechanisms were most unappealing, very inefficient and often inclined to mess up record counts.

Again, complexity helped these restricted memory systems by making the available user space easier to work with and much more powerful. And so the theory arose that adding complexity was the one and only way to get to the next upgrade in performance. Until now, no real evidence had emerged that the theory might be wrong.

### Simple But Fascinating

However, in a rather simple but fascinating experiment presented at the Eighth Annual Symposium on Computer Architecture recently, two University of California at Berkeley professors, David Patterson and Varlo Sequin, may have exploded the theory. If so, they have started a situation where programmers may have to get on with fewer and simpler instructions, rather than more frequent and more complex ones.

I hope Patterson and Sequin aren't expecting the programming population to cheer them for pushing such a development. While there are times when one would wish for code cards that had only a single side, many of the complications are genuinely useful to getting the code right the first time and to keeping it maintained. However, progress is important — so let's look at the experiment and its results.

The experiment was called Reduced Instruction Set Computer (Risc I). Only load and store instructions were permitted to touch memory; other instructions were permitted to be only one minor cycle (register-ALU-register) long. The whole was designed to go onto a single chip.

Some clever architectural techniques were permitted, whether old or new — such as delayed jumps (from Maniac), an always-zero register (from CDC 6400), and so on, together with overlapping window-referencing of register contents.

Particular emphasis was given to optimizing the procedure entry/return system. Space considerations were delayed for another experiment.

Similar C compilers were used to create the evaluation statistics, which were based on a fairly small set of programs. A point was made that, currently, commercial compilers still do not optimize performance much and, in particular, are doing little or nothing about register usage. Using Risc constraints, of course, full use of registers is unavoidable.

### Two Surprises

The first surprise in the results came in relationship to the space that was taken up by the program. This had not been attempted to be kept down and did come up as being larger than with complex instruction sets. But not that much larger — not even double!

In fact, the comparison with the Digital Equipment Corp. VAX 11 and PDP 11/70 systems showed only a 50% increase in program size. If optimization can do a one-third reduction, which is still unproved, space considerations could be awash.

The second surprise was that study seemed to show that a student circuit-design team could produce a single-chip system with a 400-nsec register-ALU-register speed that would outperform the VAX performance by 1.6 to one — If they could correctly manage all the cell designs and other variables.

Those two findings were enough for a paper, and in themselves are worth thinking about, both by architects and by forward-looking programmers. We can leave the architects to themselves while we look at it from the point of view of a programmer.

Simplicity, like complexity, has its own unavoidable problems, which may well slip over into the programmers' world. The increasing power programmers are currently obtaining over the ever-widening domain of computers suggests the up-to-date programmer will be directly affected by these changes. On the whole, simple structures from different vendors will tend to be more alike than complex ones, with their implementation-dependent differences.

Therefore, following the simplicity path may help make programmers more generally useful and less tied to specific vendors. This is more important, in the long run, than the difficulties in the path.

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# LETTERS

(Continued from Page 32)

in 1979 and the amount of work that has been done to remedy the situation far surpasses anything the rest of us have done. They have been innovative in tools and techniques, development methodologies and DBMS' and have progressed far beyond the period in question.

The goal of bringing the cost of DP together with the value of information received is being reached in Utah and, if permitted, they would be more than willing to share their findings with the rest of us.

CW passed up a golden opportunity to contrast the past with what promises to be the future. CW also overlooked the quandary most auditors find themselves in — that of being unable to keep up with technology because the demands of their jobs keep them in the muck of the past, or the lack of exposure to accomplishments until sensational issues prevail and, finally, the frustration of having a favorable report revised repeatedly until it satisfies the oft times negative wishes of the person paying for or releasing the audit.

Dozens of other shops fear they are in the same predicament at this time, I daresay, and will not contact the SISC in an attempt to solve their problems because of your headlines.

Daniel A. Nolan
University Park, Md.

## Judging Relative Merits

A professional periodical, when describing the complaints and claims of mutual antagonists, should confine itself to presenting the known facts and then allow the reader to judge for himself the relative merits of each case.

In "French DPers Escape Attack on Iraqi Reactor" [CW, June 15], *Computerworld* described the Israeli attack on the Iraqi reactor. In this article, phrases such as "the widely condemned attack" placed the onus of wrongdoing on the Israelis.

Furthermore, while the article directed our sympathies toward the actual and potential casualties of the French workers, no mention was made of the Israeli claim that the atomic installation was designed to produce an atomic bomb — a bomb aimed at causing enormous casualties in Israel.

Louis Premock
President
State Electronics Parts Corp.
East Hanover, N.J.

## Address Moral Issues

I strongly object to your presentation of the article, "French DPers Escape Attack on Iraqi Reactor," [CW, June 15].

First, I question whether a few foreign programmers almost dying in a foreign country is proper substance for an article in a computer industry newspaper.

Second, and much more significant, the article is misleading. It does not point out that the reactor was very probably used by the Iraqis to produce material for atomic bombs to use against Israel.

Facts that lead to this conclusion are the Iraqi president's public statement of his intention to bomb Israel with atomic weapons and Iraq's insistence that France supply it with weapons-grade fuel when a lesser grade fuel would suffice for all of the reactor's needs except making atomic bombs. Furthermore, an oil-rich country such as Iraq will get more for its money with an oil-burning power plant than with an atomic power plant, so why invest $250 million in the latter?

Israel has stated it had information that proved Iraq's intentions. Israel has the right to defend itself just as the U.S. did 20 years ago during the Cuban missile crisis, when President Kennedy was prepared to take the same action that Israel did.

The article might have dealt with the moral issues of a programming job that might result ultimately in the murder of millions of innocent people and of a programmer's obligations to himself and the world when his job involves harm or possible harm to innocent people.

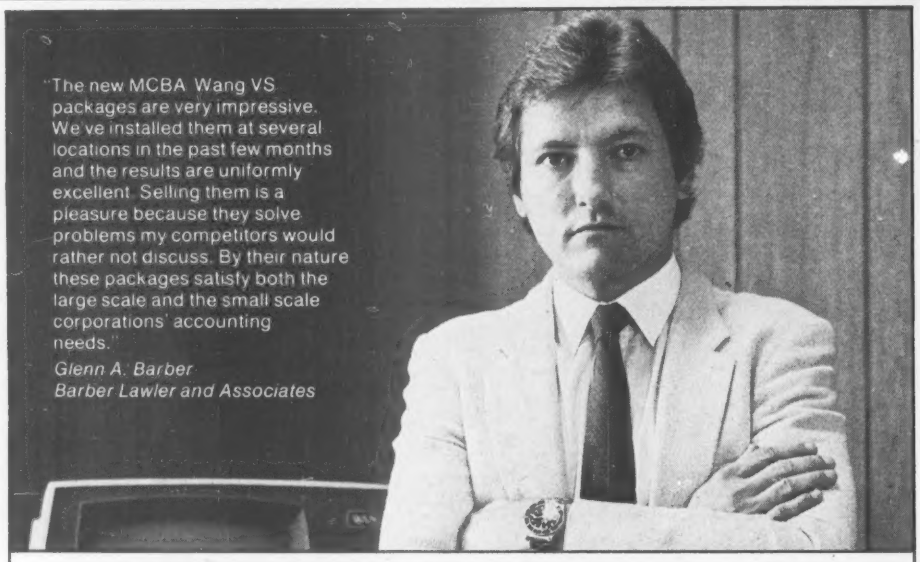
Robert M. Toxen
Bob Toxen Computer Systems
Santa Clara, Calif.

## Stick to Computers!

If you insist on reporting general news rather than computer news, I would suggest you hire a staff that can tell pejorative political propoganda when they read it.

Your article, "French DPers Escape Attack on Iraqi Reactor" [CW, June 15], was replete with phrases like "widely condemned" and bore absolutely no acknowledgement of the Israeli position that the raid was to destroy a nuclear bomb research and

(Continued on Page 36)


# NEW Wang VS COBOL Business Applications

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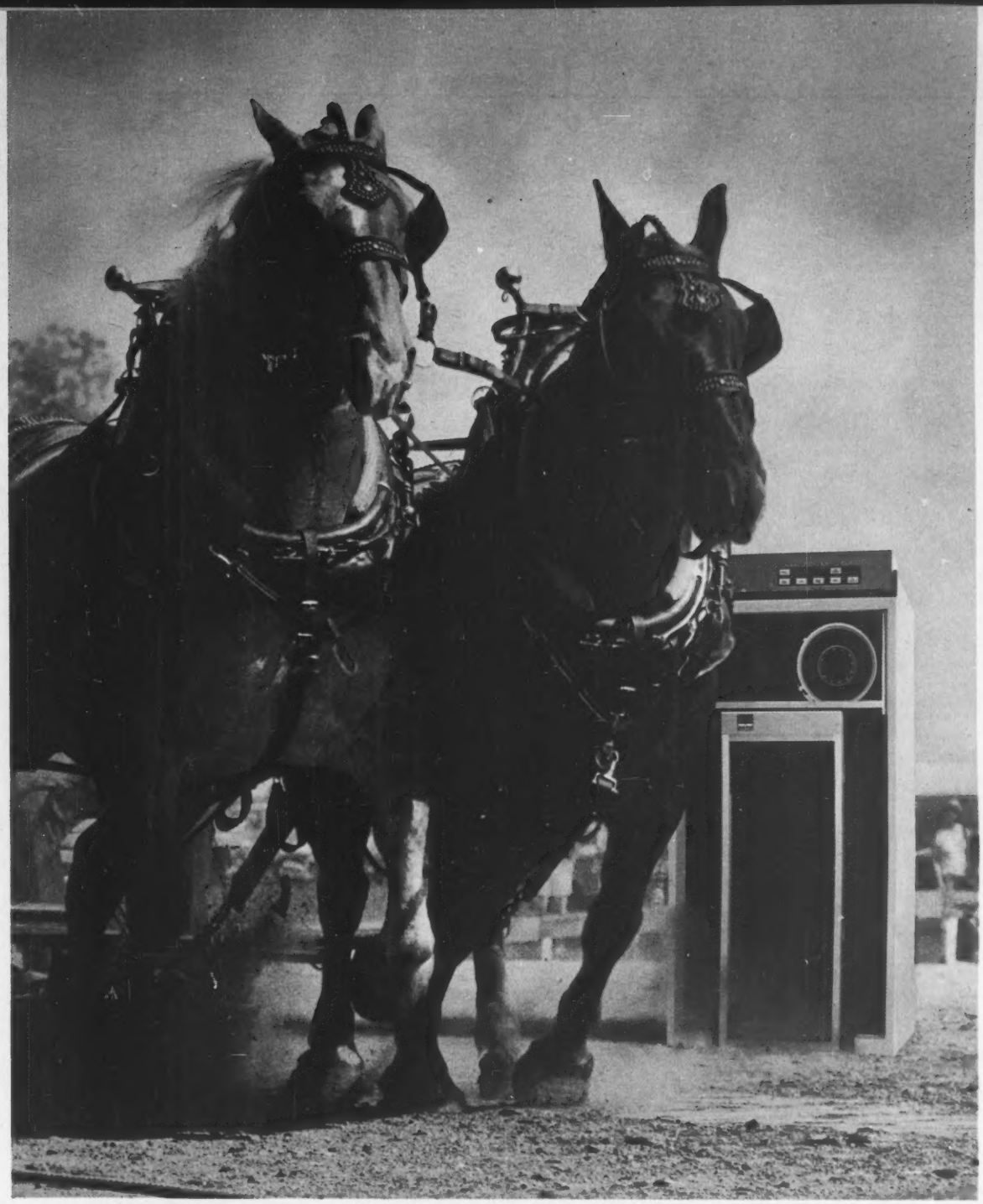
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P 10357 C 5/81

(Continued from Page 34)

production facility — a capability with immense destructive potential in unstable hands.

We all deplore violence, but I really doubt if "French DPers narrowly escaping death" is the critical story here.

I'm tempted to say something like: "Please stick to computers and leave the real world to the adults!" . . . but that would be childish, too.

Abbott Frank
Hopkins, Minn.

# LETTERS

## Interesting, But . . .

I found Clive Finkelstein's six-part series "Information Engineering" [CW, May 11 - June 15] most interesting, but spotty in content. In particular, I found two points to be severely in error.

The first was his improper definition of "third normal form." Third normal form studies the relationships between data elements within a logical record, not of the relationships of data elements to primary keys. Unfortunately, what he has stated was second normal form.

The second point to be made is that Finkelstein has seen fit to erroneously identify and classify our product, Pride-ASDM, with other traditional application packages such as Spectrum-1, Method-1 and SDM/70. (Incidentally, he forgot to mention Mentor, Touche Ross's approach and Cara's). I take extreme exception to this. Finkelstein has obviously done a superficial job in studying the various approaches.

Pride-ASDM is first and foremost a design method. It always has been and always will be. The design method is the key element that drives project management, data management and documentation, not vice versa!

What may come as a surprise to Finkelstein is that structured systems analysis/design has been automated by our product, which doesn't give too much credence to his manual approach. With our automated design facility (ADF) within Pride-ASDM, user information requirements are submitted to the ADF, which performs the tedious tasks of data flow analysis and checks data structures.

Based on this intelligence, it will then render a design for the entire information system.

If a current system can implement the requirements, then the ADF will suggest modifications to it. Revisions can be resubmitted until a design is settled on. In this way, the ADF acts as the "system analyst's workbench" for modeling of the system.

After a design decision has been made, systems documentation is then generated by the ADF, including design manuals with flowcharts, computer run books with JCL and so on.

The ADF is a relatively new enhancement to Pride-ASDM, but users already are reporting a 40% to 50% improvement in productivity. As another by-product of our product, we can do both logical and physical data base design automatically.

It does not surprise me that Finkelstein's article neglects to mention these things. After all, our product most assuredly would put him out of business. What does alarm me is that he feels free to make damaging misstatements based on ignorance. This does not add to his credibility or to *Computerworld*'s for publishing it.

If he wants to write about our product, why doesn't he ask for the proper literature? If he's sincerely interested, we would be delighted to supply him with a product brochure.

Tim Bryce
Associate
M. Bryce & Associates, Inc.
Cincinnati, Ohio

## More on Hotline

I was pleased to read the article on Missouri's child abuse reporting system "Missouri Child Abuse Hotline Goes On-Line" [CW, June 15]. As project director for the development of the Missouri system, I would like to elaborate on some aspects of the development project that made it unique within the Department of Social Services.

This project was the first in the history of the department where the program division, the Division of Family Services, planned and controlled a major DP development project. By adequately planning and controlling the project, the division was able to ensure that the product developed met the needs of the end users.

Another unique aspect of the system relates to the development of management reports from the system. Experience within our department had shown that, whenever a program division makes the transition from a completely manual system to an automated system, there is a period of refinement of reports to include or exclude certain additional information.

Rather than develop all information report programs using a language such as Cobol, we chose to have several of the programs written in SAS. By having done so, we are able to refine the content with minimal programmer time. After the content of the reports is made final, they will be put in production using Cobol.

An informational manual was developed to provide an overview of the child abuse reporting system in Missouri. If any reader would like a copy of this manual they may obtain it by contacting Dwain Hovis, Deputy Director for Social Services, Division of Family Services, P.O. Box 88, Broadway State Office Building, Jefferson City, Mo. 65103.

John L. McGinnis,
Project Director
Child Abuse & Neglect
Reporting System
Missouri Department
Of Social Services
Jefferson City, Mo.

## Curing GOTOs

I was very disappointed, to say the least, in the article "Structured Maintenance: New Tools for Old Problems" [CW June 15].

The cure presented for GOTOs was worse than the disease.

Cobol programs can be written without GOTOs, but to avoid GOTOs at all costs may make the resulting program unmaintainable.

The following is the same program used in the article written without GOTOs. It is easy to read and would also be easy to maintain.

```
PROCEDURE DIVISION.
MAIN-PROCESS.
    PERFORM INITIALIZATION
    PERFORM PRODUCE-PAGE
        UNTIL END-OF-FILE = "Y".
    PERFORM TERMINATION.
    GOBACK.
INITIALIZATION.
    OPEN INPUT CUSTOMER-FILE
        OUTPUT PRINT-FILE.
    READ CUSTOMER-FILE
        AT END MOVE "Y" TO END-OF-FILE.
PRODUCE-PAGE.
    MOVE TITLE-LINE TO PRINT-LINE.
    WRITE PRINT-LINE
        AFTER ADVANCING TOP-OF-PAGE.
    MOVE HEADING-LINE-1 TO PRINT-LINE.
    WRITE PRINT-LINE
        AFTER ADVANCING 2 LINES.
    MOVE HEADING-LINE-2 TO PRINT-LINE.
    WRITE PRINT-LINE
        AFTER ADVANCING 1 LINES.
    MOVE ZERO TO LINE-COUNTER.
```

(Continued on Page 38)




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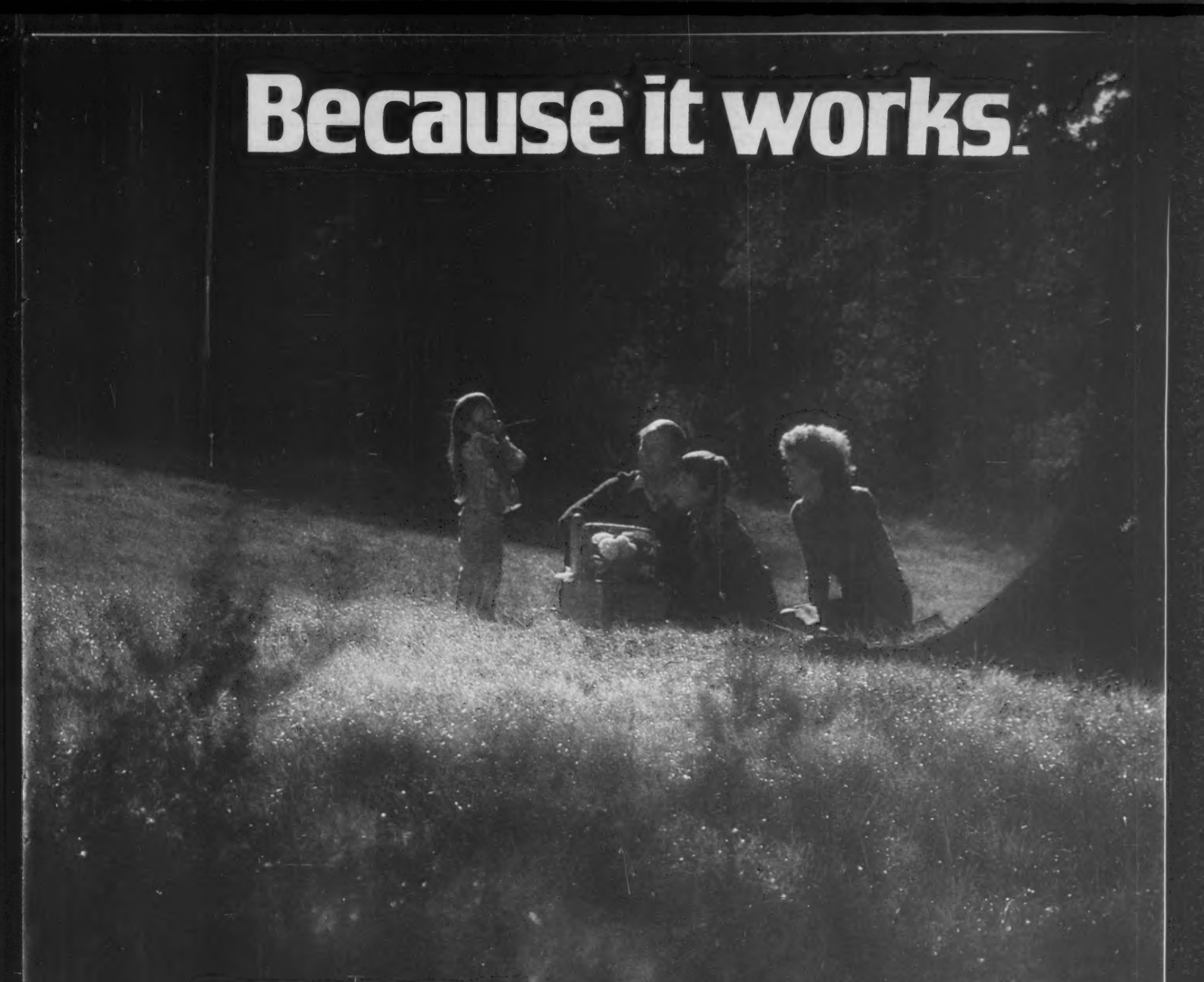
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(Continued from Page 36)

```
    PERFORM PRODUCE-PAGE-BODY
        UNTIL LINE-COUNTER > 55
        OR END-OF-FILE = "Y".
PRODUCE-PAGE-BODY.
    IF CUSTOMER-VOLUME > 1000.0
        PERFORM PRINT-A-LINE.
    READ CUSTOMER-FILE
        AT END MOVE "Y" TO END-OF-FILE.
PRINT-A-LINE.
    MOVE SPACES TO PRINT-LINE.
    ADD CUSTOMER-VOLUME TO TOTAL-
        VOLUME.
    ADD 1 TO CUSTOMER-COUNT.
    MOVE CUSTOMER-NUMBER
        TO CUSTOMER-NUMBER-OUT.
    MOVE CUSTOMER-NAME
        TO CUSTOMER-NAME-OUT.
    MOVE CUSTOMER-VOLUME
        TO CUSTOMER-VOLUME-OUT.
    WRITE PRINT-LINE
        AFTER ADVANCING 1 LINES.
    ADD 1 TO LINE-COUNTER.
TERMINATION.
    MOVE TOTAL-VOLUME
        TO TOTAL-VOLUME-OUT.
    MOVE CUSTOMER-COUNT
        TO MAJOR-COUNT-OUT.
    MOVE TOTAL-LINE
        TO PRINT-LINE.
    WRITE PRINT-LINE
        AFTER ADVANCING 2 LINES.
    CLOSE CUSTOMER-FILE PRINT-FILE.
```

Dale O. Brandser
Systems & Programming
Training Coordinator
The St. Paul Co.
St. Paul, Minn.

# LETTERS

## Chart Mixed Vendors

The chart accompanying "RDC Profiles Financer Planners" [CW, May 4] mixes time-sharing vendors and the actual planning package vendors.

Our product, the Interactive Financial Planning System (IFPS), was one of those so treated. IFPS is developed and marketed worldwide by Execucom Systems Corp. of Austin, Texas. Control Data Corp. offers IFPS only on a time-sharing basis via Cybernet.

H.A. Rellstab
Vice-President,
Domestic Sales
Execucom Systems Corp.
Austin, Texas

## Invasion Not Welcome

*Computerworld*'s recent article regarding the recruitment of foreign programmers and analysts, "U.S. Firms Welcoming This British Invasion" [CW, June 8], seemed to imply this development is of unqualified benefit to everyone.

The lack of mention of any negative effects that could result from this accelerating practice increases the perception that CW is more a mouthpiece for the views of upper management than an advocate for improving the lot of the working American computer professional. In fact, the wholesale importation that is going on of DPers from other countries is a matter of great concern to those of us working in companies that have hired large numbers of foreign engineers and computer professionals.

Basically, it is directly hindering our pay and promotional opportunities.

We are amazed that the advocates of this practice continue to cite as the rationale for importing these foreigners shortages of professionals in the discipline for which they are recruiting.

However, it should be obvious to anyone who contemplates it that, in a large free job market such as exists in most U.S. professions, shortages in most skills are more a function of salaries offered than anything else. A short-term run-up in salaries in a field will tend to entice workers to enter it, bringing supply in line with demand after a relatively short period.

Rather than offer salaries that will attract the needed skills or invest in training American workers (in particular, minority Americans), some upper managements, aided by lax interpretation and enforcement of immigration rules, blithely reject any responsibility to U.S. citizens and take the least-cost route.

You can be very sure that the British, Indian, Israeli and most other governments have immigration policies that zealously protect jobs and pay levels of workers in their countries. It is to the long-term detriment of workers in our industry, as well as to the U.S. as a whole, that the influx of foreigners into the professional (as well as the nonprofessional) work force here continues largely unchecked.

Dave Johnson
Ringwood, N.J.

## Cause of DP Turnover

One aspect seldom mentioned in *Computerworld*'s coverage of DP turnover is that of DP managers who know nothing about DP. However, this is a major cause of turnover.

Too often, DP managers who know nothing about DP make unwise decisions. How do these people get to be DP managers? Simple — many come from user areas. While this type of manager may, in fact, know what the user wants, he still has no idea of what is involved in DP.

Users and DPers should each know their jobs. The two groups should be able, with the bare minimum of technical jargon, to arrive at the best solution to the problem at hand. My company is encouraging greater user participation and cooperation in development with greater success than before. Moreover, we are hiring and naming as DP managers people with knowledge of DP.

Ken Mitchell
Newburgh, N.Y.


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*Replaces Vsam, Isam*

# Confirmed IBM User Finds Alternative

By Lois Paul
CW Staff

PHILADELPHIA — Joe Daniero, a confirmed IBM software user, took the plunge into non-IBM waters reluctantly when he switched to an alternative to Vsam and Isam.

The vice-president for DP at Delaware Management, Inc. here, a mutual funds company, said that he was forced into considering software from a vendor other than IBM two years ago because he needed a space manager and IBM did not offer one for the DOS/VS operating system under which his IBM 370/115 was running.

"Basically, I was not a software vendor person. I was straight IBM-oriented and I didn't really want any other software in my shop," he recalled.

The problems Daniero experienced that forced him to look elsewhere were the common ones of increasing workload, the need to upgrade equipment and the wait for the next IBM equipment release.

Delaware Management had experienced a growth rate of 400% in four years. The lease for the IBM 370/115 it had been using for three years had two years to go.

**Stretch Life**

With the DP workload growing and stretching eight-hour days to 20-hour days, Daniero needed a way to extend the life of his current equipment. He did not look at a variety of vendors because that is not the company's custom. Instead, he requested information through the mail from Universal Software, Inc. regarding Adas, its space manager software package.

"After trying Adas, we decided to keep it because it returned a lot of wasted disk space that we needed for applications," Daniero said.

A Universal Software representative then suggested the company look at Psam as an alternative access method to IBM's Isam or its Vsam.

Daniero rejected the idea for a few months. "I was not keen on changing the access method that involved a whole lot of programs." He added that 90% of his files were Isam and it was necessary to reorganize them once and sometimes twice a day to keep run times down.

He finally was convinced to try Psam. "We were amazed at the ease of conversion," he said. "It had sounded too good to be true. I expected the whole myriad of problems, but they never materialized. We have been using Psam now for two years.

"It is almost an invisible-type access method. It requires very little maintenance, except for the allocation of file space. Files are easily reorganized and reloaded."

Daniero said that when all of his files were converted to Psam, the daily schedule that formerly ended at 4 in the morning was ending at 8 p.m. the same day it began.

Files that had been reorganized once or twice daily were now reorganized once a week. There also was a 25% to 30% gain in disk space.

With continued growth, the company soon faced a saturation problem with its IBM 370/115, despite the use of Psam. IBM

*(Continued on Page 40)*

# Back-End DBMS Compatible With Multiple Vendor Devices

NEW YORK — Advanced Computer Techniques Corp. has unveiled a back-end data base management system (DBMS) designed to be implemented on multiple vendor devices.

The DBMS is implemented in Pascal and configurable to execute on a host processor or one or more back-end processors. Initial implementations of the product support a network data model allowing virtually any relationship among records, the vendor claimed.

Internal structures are designed to support a variety of access mechanisms, independent of the user's view of the data.

The DBMS supports concurrent access of multiple users on one or more data bases. Commands are processed on a multithreaded basis such that the product can make effective use of tightly coupled multiprocessors.

All records are accessed based on their membership in one or more sets; in addition, multiple system-owned sets are supported. Because member records are physically stored within one of their sets, simpler structures can be represented without the overhead often associated with network data models, a spokesman said. Physical access methods supported include indexed, chained and calculated.

Users interact with the data base software using a high-level Data Manipulation Language (DML), which is independent of both the host processor type(s) and any particular programming language.

The back-end DBMS costs approximately $175,000, depending on the environment in which it is to be run, ACT said from 437 Madison Ave., New York, N.Y. 10022.

# 'On-Line Performance Tool' Tunes HP 3000 Applications

PALO ALTO, Calif. — On-Line Performance Tool (OPT/3000), an interactive performance measuring package for users of Hewlett-Packard Co.'s HP 3000 processors, provides software and training that enables users to determine the current workload, memory usage, CPU activity and I/O traffic of their systems, the vendor said.

Based on this information, users can tune individual applications, balance the CPU workload, optimize system performance and plan future capacity, according to HP.

In addition to software, the OPT/3000 package also includes a System Performance Training course covering HP's Multiprogramming Executive (MPE) operating system and details of the system performance analysis, according to a vendor spokesman.

OPT/3000 produces performance information in the categories of global overview, memory, CPU, I/O, process and system tables. Up to 23 different interactive displays may be selected for further details on performance, the vendor said.

*(Continued on Page 40)*

# IBM 'Cbas' Backs Commercial Banks

WHITE PLAINS, N.Y. — IBM has unveiled a Commercial Bank Application System (Cbas) that consists of six packages providing financial account processing to support application areas for commercial banks.

Cbas includes a base of prerequisite programs (Cbas Base Support System) and five application products: Cbas Demand Deposit Accounting (Cbas DDA), Cbas Savings Accounting (Cbas SAV), Cbas Time Certificate of Deposit Accounting

*(Continued on Page 40)*


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Also, Cass Marketing is always looking for new product ideas for the IBM system user. For more information regarding T.G. Shades, T.G. Solution or new product ideas, contact:

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# Commercial Transaction Designed for Univac V77

BLUE BELL, Pa. — Sperry Univac has brought out two Cobol-based commercial transaction systems for its V77-500, 700 and 800 minicomputers.

The Commercial Transaction System I is for the entry-level V77-500 user; Commercial Transaction System II is geared toward high-volume production or development environments.

The System I includes the OS/77 package that comprises the Vortex II Operating System, Vortex Telecommunications Access Method and the Resource Management Executive (RMX) system. The vendor's V77 Pronto Monitor, also part of System I, reportedly has a common, modular interface with any of the V77 line protocol handlers.

Varied file management capability is offered via Isam and a Data Management Package featuring queued sequential access method.

An added function is the V77 Sysgen Helper, an interactive software package that prompts and guides the user in the creation of directives required for operating system generation or modification.

Commercial Transaction System II includes the System I components with the Cobol 74-800 language processor substituted for Cobol and excludes Isam.

Both packages require a V77-500, -700 or -800 with a minimum 256K bytes of storage, disk storage capacity, a data communications multiplexer and line protocol handlers.

System I is licensed for use for $12,000 and System II is licensed at $14,000, according to the vendor, which can be reached at P.O. Box 500, Blue Bell, Pa. 19424.

# IBM User Finds Alternative

*(Continued from Page 39)*

was able to improve the delivery date on the 4331 system that had been ordered and it arrived in July 1980.

Delaware Management converted to IBM's DOS/VSE operating system for the 4300. This required a switch to Vsam, Daniero said, because Psam did not support Fixed-Block Architecture (FBA) at that time.

"We learned a big lesson," he said. "We got into something that was completely over our heads and we had a real problem. There was a lot of time spent on the phone with IBM support centers and representatives. There were a lot of bugs."

Daniero said, "Naturally, when they came out with FBA support on Psam, we were delighted and went back on it."

He said they were able to convert more files to Psam in two days than they had converted to Vsam in four months.

# Package Helps Tune HP3000s

*(Continued from Page 39)*

The software package is said to obtain information via a measurement interface integrated into the HP 3000 MPE operating system.

OPT/3000 may be used either in batch mode or to log information to files for later reduction through user-developed programs, HP said.

The U.S. list price for the OPT/3000 Performance Measurement Package, consisting of OPT/3000 software for a single HP 3000 system and the two-week training course for one person is $8,500.

The software reportedly will operate on HP 3000 Series 30, 33, 44, II or III computers with the MPE IV operating system. Multiple copies of OPT/3000 are available at $2,200 each, and the course is available for additional students at $2,100 per student. Software support for OPT/3000 is priced at $60/mo.

Current delivery estimates for OPT/3000 are eight weeks, the vendor said from 1507 Page Mill Road, Palo Alto, Calif. 94304.

# 'Cbas' Backs Commercial Banks

*(Continued from Page 39)*

(Cbas TCD), Cbas Revolving Credit Accounting (Cbas RVC) and Cbas General Ledger Accounting (Cbas GNL).

The Cbas system is designed to use IBM's Customer Information Facility/Virtual Storage (CIF/VS) program product in a DOS/VSE environment. It reportedly maintains an on-line CIF/VS-compatible DL/1 data base that can be utilized by on-line teller and automatic teller machine applications that are not part of the Cbas package.

For each account, Cbas programs update data in the on-line account data base, which is required daily for the on-line applications.

CIF/VS is said to provide for the creation of nondollar transactions whenever name, address, or other pertinent customer information is changed so that batch account records can be maintained and the appropriate change reports produced.

Monthly charges for the individual packages are $475 for Cbas Base, $365 for Cbas DDA, $330 for Cbas SAV, $255 for Cbas TCD, $235 for Cbas GNL and $185 for Cbas RVC.

The vendor is located at 1133 Westchester Ave., White Plains, N.Y. 10604.



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# System/34 Packages Back IBM Accounting Systems

HAMDEN, Conn. — Five packages designed to enhance IBM System/34's Manufacturing Accounting and Production Information System (Mapics), Distribution Management Accounting System II (DMASII) and Distribution Finance Accounting System II (DFASII) were announced here by Daly & Wolcott, Inc.

The vendor claims to have enhanced IBM's accounts receivable package to enable the user to inquire and print any customer's history of payment. The package will display the invoice number, amount, date billed, final payment date, and the number of days the invoice was outstanding. This is available for $500.

A second enhancement to accounts receivable provides Dunn & Bradstreet credit ratings in the customer master file. This is available for $250.

IBM's accounts payable package was enhanced to enable the user to keep a history of vendor invoices and payments, Daly & Wolcott said. The user can inquire by vendor number or receive a report showing invoice number, date, amount, the date it was paid and the days the invoice was open. This enhancement is priced at $500.

Daly & Wolcott's Purchasing System, which costs $900, is said to cut purchase orders, track them and provide on-line receiving with automatic generation of inventory transactions for processing by DMASII.

Another enhancement to DMASII reportedly enables the user to receive both multicompany invoice, receivable and inventory registers by keying on customer number. This modification has a one-time license fee of $750.

Daly & Wolcott can be reached at P.O. Box 5068, Hamden, Conn. 06518.

# Fusion Updates System/34 Tool

MILL VALLEY, Calif. — Fusion Products, Inc. has announced Version Two of the company's menu-driven query/report writer for the IBM System/34 said to produce bar graphs that are automatically aligned for the workstation.

FPI/1 can build output or work files to user specification, a feature that allows the package to interface between existing data and other packages without any programming required, according to the company.

Other package capabilities include Boolean logic in selection criteria and delayed prompting of selection criteria at execution time, the vendor said.

FPI/1 carries a one-time lease fee of $3,000, the vendor said. Fusion Products, Inc. is located at 317 Miller Ave., Mill Valley, Calif. 94941.

## Software Directory Out for System/34

NEW YORK — A directory of software packages for the IBM System/34 is available from Mincron SBC Corp.

*Pac-Finder System/34* consists of more than 300 software package descriptions catalogued by application and vendor/product. Each package description includes title, source language, pricing and usage options, number of installations, date first installed, vendor contact information and details of its purpose, functions and features.

In looseleaf binder form, the directory costs $295 and includes three quarterly supplements. Mincron is located at Suite 2809, 350 Fifth Ave., New York, N.Y. 10118.

## System/34 Directory Covers Applications

SILVER SPRING, Md. — The *System/34 Software/Service/Vendor Directory* is available from the Computer Services Division of Professionals Unlimited.

The directory reportedly covers applications such as payroll, general ledger, financial planning/modeling, word processing and data base management/information retrieval.

The cost is $11.95; a diskette and orders should be sent to S/34 Directory, Professionals Unlimited, 3951 Lantern Drive, Silver Spring, Md. 20902.

# Text Editor Uses Single Work File

NEW YORK — A full-screen text editor for the IBM System/34 — said to be easier to use than IBM's SEU program "for many applications" — is available from Sourceware.

The Library Maintenance Utility (LMU) can be used on procedures, programs, documents or any other library members, according to the firm. It allows editing many members in one job by putting all selected members into a single work file.

The interactive system costs $600 for the first copy, with additional copies available for $400 each, from Sourceware, 204 W. 20 St., New York, N.Y. 10011.

## 'Job Cost' Allows Planning, Tracking

GARDEN GROVE, Calif. — Automated Professional Systems, Inc. has announced the latest version of its accounting system for builders and developers to assist in job costing, accounts payable, accounts receivable and payroll.

Job Cost allows builders and developers to plan, track and report on jobs in progress while accumulating and reporting budget and committed cost information on the status of any job, the vendor said.

The package is available to users of Data General Corp. commercial systems and is completely integrated to minimize data entry requirements, the company said.

Job Cost is priced at about $19,900 for a single complete system, the vendor said. Automated Professional Systems is located at 11612 Knott St., Garden Grove, Calif. 92641.

# 'UCC Two' Release Offers Operating Stability

DALLAS — University Computing Co. (UCC) has announced the availability of Release 4.4.1 of UCC Two, its software interface that allows IBM DOS programs to be moved into OS production without conversion of source code.

Enhancements have been added in Release 4.4.1 to improve operating stability and extend existing capabilities, the vendor said.

The file reblocking facility is said to support full reblocking of sequential files with job control language (JCL) for improved storage utilization without changing the DOS source program.

Also available are new user abend codes and enhanced JCL procedures for installing UCC Two under OS/VS1, the vendor said. Documentation, including system and user guides, has been updated to incorporate the new enhancements.

An unlimited license for UCC Two costs $38,500. Six- to 36-month leases are available for monthly charges ranging from $2,300 down to $1,100, the vendor said.

Maintenance costs $3,100 after the first year, UCC said from Exchange Park, Dallas, Texas 75235.

# 'Scan/Audit' Identifies Cobol Changes

WASHINGTON, D.C. — Group Operations, Inc. has added an optional technique for identifying Cobol programming changes to its Scan/370 maintenance software package for IBM and plug-compatible equipment running under OS/VS2 and MVS.

Scan/Audit reportedly adds the capability to identify programming changes through a side-by-side analysis of a modified Cobol program and its original code. It is not dependent on sequence numbers, according to Group Operations.

Scan/Audit is an option for Version 2 of Scan/370 that uses a simulation technique to determine how a program will execute at runtime without executing the program. Scan/370 is said to automatically provide analysis information with every clean compile.

Narrative comments interspersed throughout the compile listing are supported by a graphical display of the hierarchical structure of each processing path, the vendor said. Exception reports provide an early warning system that highlights specific events that could adversely affect the program's execution.

Scan/370 requires 100K bytes of core memory. Version 2, with the Scan/Audit option, is priced at $15,000. Scan/Audit may be purchased separately at $4,000.

Prices include documentation and a one-year maintenance warranty from Group Operations, 110 Vermont Ave. N.W., Washington, D.C. 20005.

# Data Base Links Local Governments

MINNEAPOLIS — A national computer data base and telecommunications link for urban managers and local governments has been introduced by Control Data Corp.

The Local Government Information Network (Login) service, designed to provide information from other local governments and sources, now holds more than 10,000 entries, is backed by the Cybernet computer system and operates over standard telephone lines.

The service costs between $1,000 and $3,000 a year, depending on usage and input credits. CDC can be reached through P.O. Box O, Minneapolis, Minn. 55440.

# *Enhanced Vulcan Offers Improved Fortran 77 Capability*

FORT LAUDERDALE, Fla. — Harris Corp. has announced an enhanced version of Vulcan, the virtual memory operating system under which its superminicomputer systems run.

Release 09A includes an improved global optimization capability for the Fortran 77 compiler and additional protection mechanisms for the Vulcan indexed sequential package, Harris said. The update offers interactive capabilities for system initialization and reconfiguration.

Also included are a multitasking subsystem capability and interprocess messages to allow simultaneous communication between tasks, according to the vendor.

Other additions to the system include AZ7 query language and report writer for data base manipulation and Versatec, Inc.'s Versaplot-07 plotting package for its electrostatic printers, Harris said.

Object-only tape for Vulcan Release 09A is available free with purchase of a Harris minicomputer system.

Source-only tape is available for a licensing fee of $3,000, the vendor said from 2101 W. Cypress Creek Road, Fort Lauderdale, Fla. 33309.


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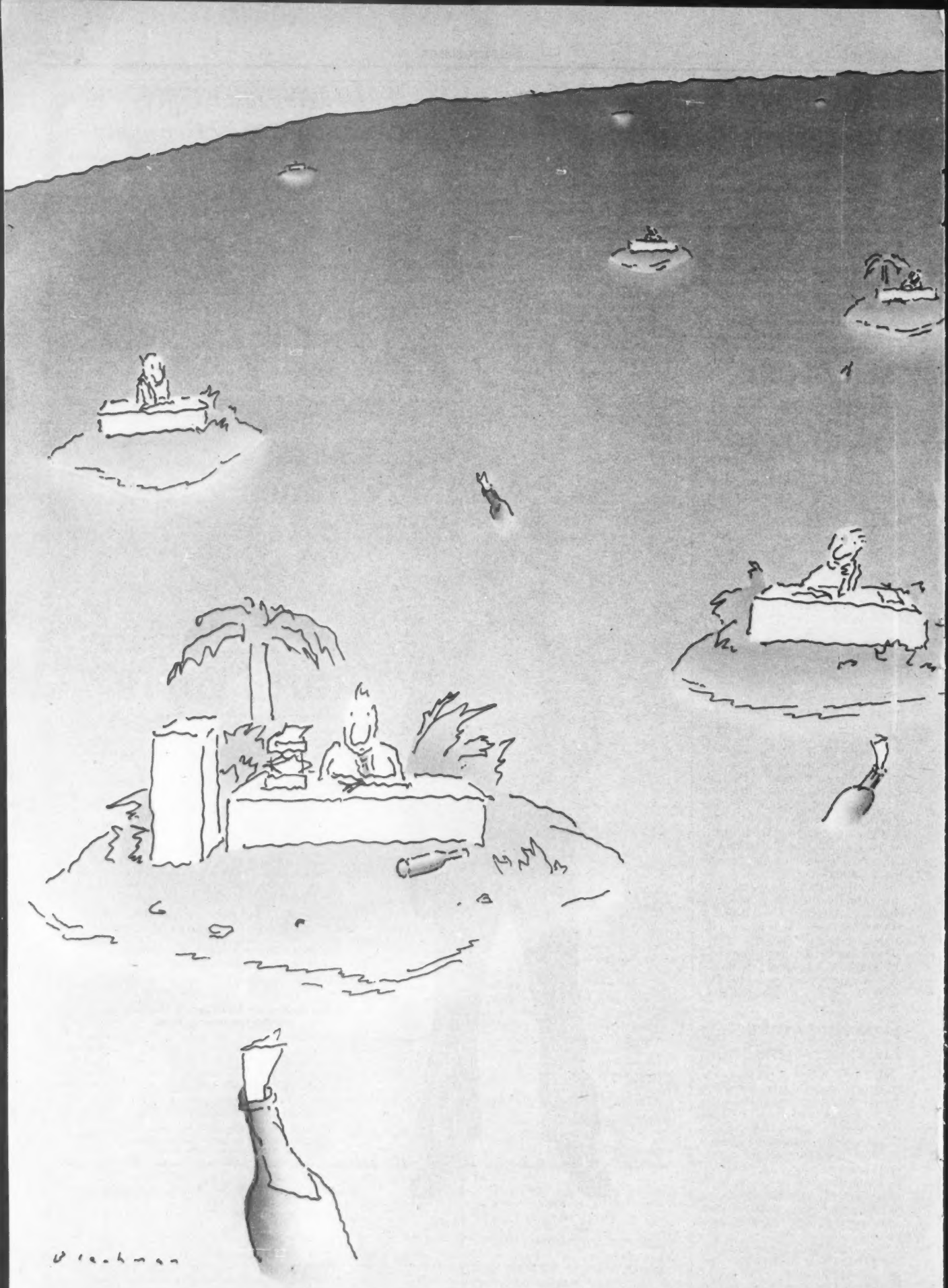
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# Package Backs Planning, Reports

VANCOUVER, B.C. — Canadian European Systems Ltd. has introduced in the U.S. its Dainev integrated planning and reporting software package for use on Digital Equipment Corp. PDP-11, Decsystem-20 and VAX systems and Hewlett-Packard 3000 computers.

Dainev will be released in August for IBM equipment running under CMS and TSO operating systems, the vendor said.

The package incorporates more than 125 routines, including consolidations, allocations, present value, internal rate of return, amortization, depreciation, scrolling and regression analysis.

The vendor said it has model merge and append features, linking (batching), reporting capabilities, graphics and a directory of models and interface capabilities. Dainev's impact on system performance is said to be minimal.

Dainev reportedly can be applied to any spread sheet formatted analysis, including budgets, variance analysis, goal-seeking, sensitivity analysis, pro forma statements, scheduling, project control, income statements and merger analysis.

On small DEC PDP-11 systems, Dainev is priced at $10,000. On DEC PDP-11/70, DEC VAX and HP 3000 equipment, the cost is $12,000. Dainev is available on Decsystem-20 for $14,000. The cost on the still-to-be-released IBM mainframe version will be $20,000.

The vendor can be reached at P.O. Box 2884, Vancouver, B.C., Canada V6B 3X4.

# *DEC Distributing Third-Party Applications*

MAYNARD, Mass. — Digital Equipment Corp. has announced a service that will acquire application software from third parties and make it available through the company's software distribution channels.

The External Applications Software (EAS) Library complements the company's software referral programs and standard software products while making low-volume products available at a low cost, a company spokesman said.

To qualify for the EAS Library, a software product is evaluated by a DEC marketing group for the application involved and then forwarded to the library if the evaluation is positive, the company said.

More information on the EAS Library is available from Digital Equipment Corp., Maynard, Mass. 01754.

# Integral Systems Adds Withholding Tax Package

WALNUT CREEK, Calif. — Integral Systems, Inc. has announced a payroll withholding tax package and a statistical package to its Payroll/Personnel System.

Moretax calculates payroll withholding taxes for U.S., Canadian, state, provincial and local tax entities, the vendor said.

The package uses a Tax Entity Table that guides the computation process, according to the vendor.

The Statistical Package Interface provides a direct communication between the employee or applicant data bases and either of two major statistical packages: the Statistical Analysis System or the Statistical Package for the Social Sciences, the vendor said.

The Payroll/Personnel System costs between $30,000 and $125,000, the vendor said. Integral Systems is located at 39 Quail Court, Walnut Creek, Calif. 94596.

# *Doctors Get Billing*

CULVER CITY, Calif. — Rexon Business Machines Corp. has introduced the Medical Information System, a billing and reporting system designed to meet the patient management needs of an individual physician or group medical practice.

The software was written specifically for the Rexon computer line using the Idol data base management system, licensed from Science Management Corp.

The Medical Information System provides patient billing and registration, appointment scheduling and forms printing. Reports such as patient listings, daily audit reports, doctor's daily revenue report, appointment schedule, aged trial balance listings, monthly transaction listings and others, the firm said.

The software offers multi-company capability so that two or more doctors or doctor groups can share the system, totally independent of each other. The system was written specifically for the doctor's office and is fully integrated with the patient data base as well as all business functions.

The software is available to users through Rexon dealers in a range of from $22,000 to $32,000 depending on configuration and system selected as well as the level of support required. Rexon is located at 5800 Uplander Way, Culver City, Calif. 90230.



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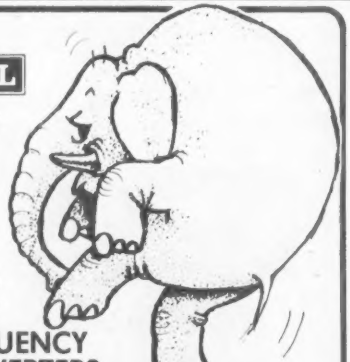
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# Data Briefs

## Digi-Data 2150 Teleprinter Runs 200 Char./Sec

JESSUP, Md. — A teleprinter for receive-only applications said to utilize dual-microprocessor control to print at rates up to 200 char./sec has been announced by Digi-Data Corp.

The microprocessor permits sustained operation at 1,200 bit/sec and data bursts up to 19,200 handled by the buffered RS-232C interface.

The 2150 teleprinter is priced at $1,550 from Digi-Data Corp., 8580 Dorsey Run Road, Jessup, Md. 20794.

## MDB Mux Runs With DEC Unibus on LSI-11/23

ORANGE, Calif. — MDB Systems, Inc. has announced the first in a series of multiplexers that are software-compatible with the Digital Equipment Corp. Unibus. The multiplexers reportedly allow users to employ a DEC LSI-11/23 microprocessor in a communications environment usually requiring a DEC PDP-11/34.

The DZ11 series uses a single board and special communications panel and has four-level interrupt assuring compatibility with Unibus software, MDB Systems claimed.

The multiplexer modules contain a 64-char. buffer with a 16-bit counter that allows minimal processor intervention, resulting in greater throughput, the vendor said.

The DZ11-series multiplexers are priced from $1,350 to $2,800 from MDB Systems, Inc., 1995 N. Batavia St., Orange, Calif. 92665.

## Radio Shack Modem Uses Plug-In Phone Jack

FORT WORTH, Texas — Radio Shack has announced a modem for its TRS-80 and other microcomputers said to utilize the plug-in modular jacks with which most telephones are equipped.

The Modem I is Bell 103-answer/originate-compatible for up to 300 bit/sec communications rates, according to the vendor.

The unit is priced at $149, Radio Shack said from 1800 One Tandy Center, Fort Worth, Texas 76102.

## Lynx Direct-Connect Modem Fits TRS-80s

LANCASTER, Pa. — ESI Lynx has introduced a new version of its Lynx direct-connect telephone modem for both Radio Shack TRS-80 Model I and Model III microcomputers.

The new Lynx replaces a previous model designed for use with the Model I only. Features include auto-dial and auto-answer functions, originate/answer and parity. Also provided are active clear and break keys and programmable I/O porting and keyboard dialing or stored-number-selection operation.

Included with the Lynx is an instruction manual that lists free bulletin board telephone numbers and describes how to call these and other services. The Lynx costs $299.95 in computer stores nationwide, the vendor said. ESI Lynx is located at 123 Locust St., Lancaster, Pa. 17602.

## Directory Covers Satellite Communications Field

WASHINGTON, D.C. — The *1981 Satellite Directory* features 515 pages of information on satellite communications.

The directory includes carriers, government agencies, congressional committees, technical and programming services, cable operators, associations, consultants and earth stations.

It is available for $85 from Phillips Publishing, Inc., 7315 Wisconsin Ave., Washington, D.C. 20014.

# University Library Net Links 17 Collections Across State of Illinois

URBANA, Ill. — Knowledge seekers at the University of Illinois (U of I) here and 16 other academic locations are enriching themselves locally and on a statewide basis with the Library Computer System (LCS).

LCS was established to help collegiate library administrators handle pressures caused by burgeoning material volume and costs on one hand, and shrinking acquisition budgets on the other. It has, in effect, expanded the collections of some libraries almost 400 times.

The project was launched in 1977 when the University of Illinois decided to create an on-line circulation system linking the libraries on its three campuses: Chicago Circle, the Medical Center in Chicago and the Urbana complex 130 miles to the south.

### System Genealogy

Initially, the system was based on one developed at Ohio State University, in operation since 1971. A similar system was implemented in 1973 at State University of New York at Albany.

U of I specialists set about modifying the system to the institution's own needs by 1978. The main library and the libraries of several individual colleges on the Urbana campus went on-line the same year, with the libraries at Chicago Circle and the Medical Center following shortly.

The advantages of the school's computer were displayed when its IBM 370/168 at the Administrative Computer Center in Chicago accommodated the complete data bases of all participants.

That CPU is augmented by remote job entry (RJE) workstations at the three U of I locations. They feature IBM 4331s and Texas Instruments, Inc. 735 printers.

### Microwave Links

With high traffic volumes predicted, school DP officials decided to forego running data channels from each CRT terminal in the system to Chicago on separate phone lines.

Instead, they purchased statistical multiplexers from Timeplex, Inc. and used them to speed library data along microwave links supplied by Illinois Bell.

Timeplex supplied 60 Series II Microplexers that more than pleased Joseph Catrambone, U of I associate vice-president of administrative information systems and services.

"Our system technicians have been pleased with the fact that despite even higher usage than we anticipated, the Microplexers have the system virtually free of microwave transmission problems," he commented.

The multiplexers have also provided economy to the system, he said, noting technicians have not had to monitor and troubleshoot it full time.

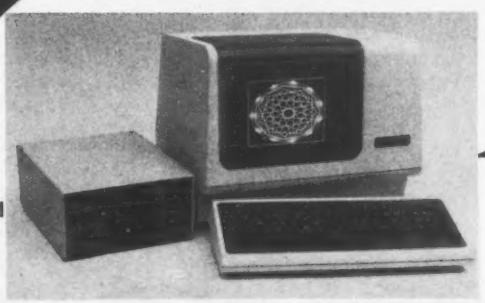
The multiplexers' traffic monitoring capabilities have been put to use helping LCS administrators gauge system usage. A study of transactions entered on six IBM 3101 CRT terminals dedicated to bibliographic search gave an idea of volume.

For those six terminals, 165,535 commands were processed within a 31-day period. Average daily systems usage, including activity initiated by library staff members, totaled 80,000 transactions.

If a book is located in the collection of an LCS library other than the one the patron is visiting, a librarian may order it through a staff CRT terminal.


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## *Lee Data 310 Supports SNA*

MINNEAPOLIS — Lee Data Corp. announced it is offering support for IBM's Systems Network Architecture (SNA) and Synchronous Data Link Control (SDLC) on its Model 310 Remote Display System, said to provide a system controller compatible with IBM's 3274 control unit.

The 310 consists of a system controller with 128K bytes of memory to meet SNA buffering requirements, seven display stations and a 120 char./sec printer and SNA and SDLC software.

The 310 leases for $963/mo from Lee Data Corp., 10206 Crosstown Circle, Minneapolis, Minn. 55344.

*Also Adds Sharing Unit*

# IDS Enhances Tech Control Center

LINCOLN, R.I. — International Data Sciences, Inc. (IDS) has introduced a Tech Control Center for network control and a Sharing Unit to allow various peripherals to share a common communications device.

The modular Tech Control Center is built around the firm's Hawk 4000 series Datatrap, which performs both interactive diagnostics and passive monitoring of serial data appearing at the EIA RS-232 interface.

Additional test capability is said to be enhanced by the Range Rider Model 1310 TDM-Modem Test Set. Series 8900 "Minitech" control modules provide patching, switching and monitoring for reconfiguring backup systems and testing the data network.

The basic 8900 16-channel EIA A-B switch, patch and monitor system costs $6,995, the firm said.

### Sharing Unit

The Model 6101 Sharing Unit is designed to allow varied combinations of up to four modems or data terminals to share a common communications device. It reportedly can simplify and/or expand a data communications system by decreasing the number of computer ports, modems and transmission lines required for existing and future operational requirements.

The Model 6101 operates at data rates up to 19,200 bit/sec in both synchronous and asynchronous modes. Each channel incorporates an anti-streaming timer to prevent a distributed device from occupying excessive channel time.

Modems and data terminals can be colocated up to 50 ft from the Sharing Unit, allowing a maximum separation of 100 ft between common and distributed devices. Separation can be extended to 500 ft using low-capacitance RS-232 cable.

The Model 6101 Sharing Unit costs $750 from the firm at 7 Wellington Road, Lincoln, R.I. 02865.


Computerworld Extra!

For the second time, Computerworld Extra! takes an in-depth look at the hottest topic of the 80's— SOFTWARE.

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Computerworld Extra! is a unique editorial product and excellent advertising vehicle. An entire extra issue of Computerworld is devoted to a single topic. Extra! is in tabloid size, and magazine format, with color covers and high quality, supercalendared newsprint inside.

In our third Extra! we'll be returning to what may be the hottest topic in the computer industry, software — and we'll be taking a broad and detailed look at the software industry with in-depth articles by industry experts on topics like these:

- Programmer Productivity Aids, a roundup.
- Integrating Application Systems with DBMS.
- Training to Increase Productivity in Your DP Department.
- High Level Query Languages
- An Overview of Programmer-Training Courses.
- Structured Methodologies: Pro and Con.
- Capacity Planning.
- System Tuning.
- Improving the Productivity of Data Entry Personnel.
- Training Non-DP People to Use DP Systems.
- Pulling the Systems Together: Integrating WP and DP Systems.
- MRP, or productivity in the factory.
- The COBOL Alternatives.
- Ergonomics: Human considerations in the Data Center.
- Improving the ROI of Information Systems.
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- How to Improve Your Own Managerial Productivity.

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# Modem Runs At 1,200 Bit/Sec

MAYNARD, Mass. — A free-standing, full-duplex modem said to enable terminals and processors to communicate over unconditioned dial-up lines has been announced by Digital Equipment Corp.

The DF03 operates asynchronously at data rates of 0 to 300 or 1,200 bit/sec and synchronously at 1,200 bit/sec, the vendor claimed.

Data formats for the modem are asynchronous, binary serial for low speed and character-asynchronous or bit-synchronous for high speed, while low-speed communications use frequency shift keying modulation and high-speed communications use quaternary differential phase shift keying, the vendor said.

The DF03 with an optional automatic originate mode is priced at $1,350 from Digital Equipment Corp, 146 Main St., Maynard, Mass. 01754.

# VT100 Gains Pen, Interface

SACRAMENTO, Calif. — Light pen and printer interface options for Digital Equipment Corp. Retro-Graphics-enhanced VT100 terminals have been announced by Digital Engineering, Inc.

The Light Pen is a pointing device for interactive graphics applications that allows the terminal to emulate the Tektronix 4010 Graphic Input Mode. As a result, a Retro-Graphics-enhanced VT100 terminal with Light Pen is compatible with existing software written for this mode, a company spokesman said.

The printer interface is compatible with parallel and serial interface printers, including the Texas Instruments, Inc. TI810, Okidata Corp. 2350 and DEC LA34 RA.

Both units are attachable to a VT100 terminal through a rear-panel assembly, although attachment to a Retro-Graphics-enhanced VT100 terminal calls for a connector assembly.

The Model VT20-LPN Light Pen costs $360. The Model VT5X-PI series printer interface, including 6-ft cable and read-only memory, costs $140. The Model VT1X-CA series connector assembly without current loop costs $135 and with current loop costs $185.

Digital Engineering is located at 630 Bercut Drive, Sacramento, Calif. 95814.

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# Band-Splitting Modem Features Self-Testing

CHERRY HILL, N.J. — A 9,600 bit/sec band-splitting modem featuring self-testing capabilities including digital and analog loopbacks of remote unatttended units has been introduced by Infotron Systems Corp.

The DL 96/V.29 BSM synchronous modem operates full-duplex at 9,600-, 7,200- and 4,800 bit/sec over four-wire-type 3002 unconditioned lines with error rates less that one bit per million.

The band splitter combines up to four medium-speed channels over a single high-speed line using a bit interleaving multiplexing technique, the company said.

The DL 96/V.29 BSM is priced at $4,500 from Infotron Systems Corp., Cherry Hill Industrial Center, Cherry Hill, N.J. 08003.

# *Tri-Data Adds Modem*

MOUNTAIN VIEW, Calif. — A dual-channel, full-duplex modem has joined Tri-Data Corp.'s line of terminal storage unit (TSU) products. The 300 bit/sec Model 802 modem is said to allow transformation of Teletype Corp. and Digital Equipment Corp. teleprinters into ASR terminals. The device is said to allow a single terminal to communicate with DDD, TWX or Telex nets.

The TSU includes a Z80 microprocessor, 16K-byte random-access memory, read-only memory edit firmware and Text Edit. Tri-Data's products are compatible with Teletype Model 43 and DEC LA34, LA36 and LA120.

A TSU configuration with the Model 802 costs $1,350 from the firm at Suite 290, 3333 Bowers Ave., Santa Clara, Calif. 95051.

# Units Aid Firms Using Large Nets

SIMI VALLEY, Calif. — A line selector and interface distribution unit for network analysis and performance measurement has been announced by Teleprocessing Products, Inc.

Both products allow large network users to architect a performance measurement system for multiple lines according to the amount of performance data to be accumulated and the frequency with which the user wants to sample the network, the company said.

The TP-278 line selector is an intelligent 1 by 8 switching module that may be cascaded to wider configurations in 8-channel increments, the vendor said.

The TP-278IDU is an 8-channel distribution unit that allows multiple TP-270s to be addressed from a single asynchronous port, the vendor claimed.

The TP-270 is priced at $1,850 and the TP-278IDU at $950 from Teleprocessing Products, Inc., 4565 E. Industrial St., Simi Valley, Calif. 93063.

# Module Out For PDP-11

ORANGE, Calif. — MDB Systems, Inc. has announced a direct memory access module that provides bidirectional exchange of 16-bit data between a Digital Equipment Corp. PDP-11 or VAX-11 processor and an external device employing RS-422 long-line differential levels.

The RS-422 capability allows the peripheral device to be placed up to 3,000 ft from the processer. The product, called the MDB DR11-BLL, is fully compatible with the DEC DR11-B operating and diagnostic software.

The MDB DR11-BLL costs $1,995 from 1995 N. Bravata St., Orange, Calif. 92665.


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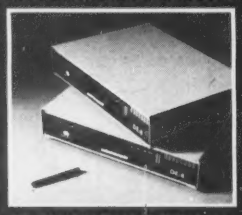
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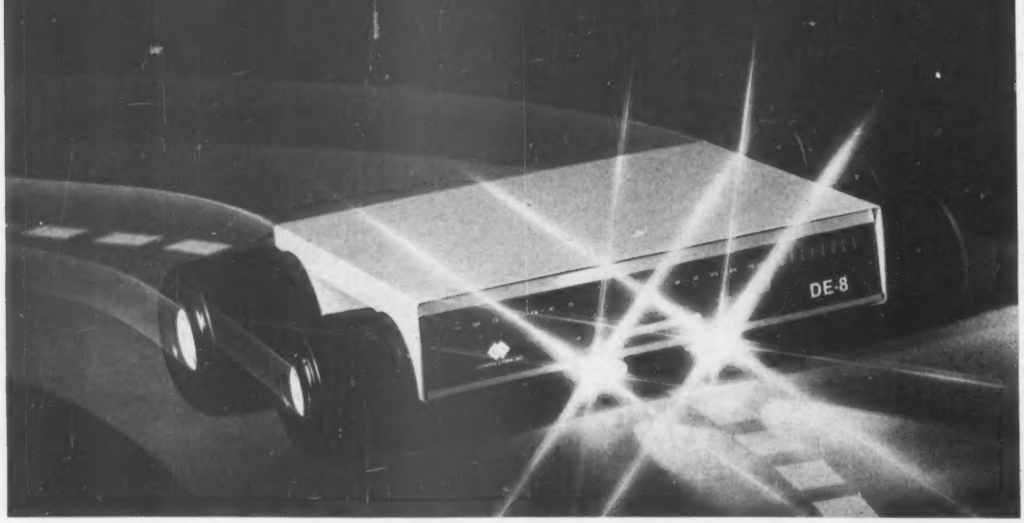
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*To Avoid Duplication of Efforts*

# Insurer Cuts Costs by Merging DP Sites

By Tom Henkel
CW Staff

PORTSMOUTH, N.H. — Liberty Mutual Insurance Co., the fifth largest property and casualty insurer in the U.S., is staging a one-company war against duplicated efforts and high data processing maintenance costs. And the battlefield is here at the firm's new computer center.

In order to keep up with DP demands, yet keep processing costs to a minimum, the company recently combined its Boston and Burlington, Mass., data processing centers into one central location here in Portsmouth. The two sites were merged in late 1980 and officially dedicated in April of this year.

The firm's new four-story facility houses two IBM 3033 processors and one IBM 370/168 processor, along with 136 spindles on IBM 3350 disk drives, 32 3420 Model 6 and 32 3420 Model 8 tape drives and approximately 300 modems connecting the firm's 175 branch offices.

### Memory Capacity

The combined main memory on the Liberty Mutual processors is 31M bytes. In addition, the firm has a Honeywell, Inc. Delta 1000 processor installed to handle security within the data processing facility, according to the firm's assistant vice-president and manager of data processing administration, Baugham Sanborn.

Liberty Mutual also uses eight Digital Equipment Corp. PDP-11/70 processors at remote sites to batch data to the main processors.

Other users at the firm's 175 branch offices use terminals equipped with modems to access the system. Applications handled by the system include accounting functions, claims processing and policy processing, Sanborn said.

The computer system is supported by a Teledyne Corp. uninterruptible power supply and the firm has a backup site in Lewiston, Maine.

Sanborn said Liberty Mutual currently has the facilities to develop a backup computer room at the Lewiston site, but it has yet to do so.

One plan now under consideration is to transfer the firm's 370/168 to the Lewiston facility as a backup processor and to acquire another 3033 for the main processing plant. No decision has been reached on that proposal, Sanborn said.

### Computer Center

The computer center covers 20,000 sq ft and employs about 650 people. The facility handles about 140,000 requests a day from each of the 175 branch offices, according to Sanborn.

Special equipment in the center's refrigeration room pumps water, heated in the process of cooling the processors, throughout the building. This provides most of the building's heat. The firm said the heating system can support the building down to around 10 degrees F.

In addition, insulated glass installed in the building's south wall is covered by screens that filter out high-angle summer sunlight, helping to keep the building cool while allowing lower angle winter sunlight in for heating.

The firm moved out of its Boston and Burlington, Mass., offices because the data processing facility was growing too rapidly for those sites. Sanborn said the firm chose Portsmouth, N.H., because Liberty Mutual owned enough land there to handle the data processing facility, a claims services building and parking for approximately 1,300 employees.

He added that Liberty Mutual analyzed the area and decided New Hampshire was one of the better places to attract the data processing personnel needed to man the facility.

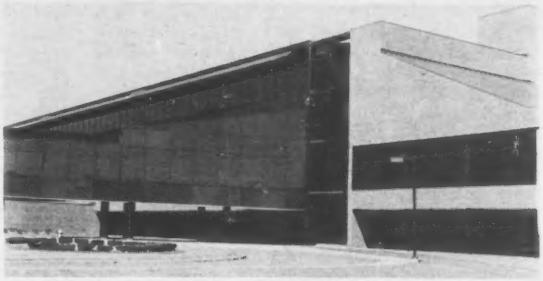
### Problems Eliminated

In its old two-site configuration, a number of jobs were duplicated and computer maintenance programs had to be repeated several times to cover the two separate systems. Those problems were eliminated at the central data processing site, he said.

To help with the transition to the new center and to improve corporate communications Liberty Mutual installed a video teleconferencing network linking the Boston office with the data center. The system provides face-to-face communications between DP personnel via closed circuit television, Sanborn said.

Sanborn said the teleconferencing concept is relatively new and Liberty Mutual is one of the first firms to use it. A teleprocessing control room links data center processors with branch offices around the country and in Canada, he added.

Currently, Liberty Mutual employs more than 18,000 people in 186 offices in North America.



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## *Harris Service Claims to Lower Upkeep Costs*

FORT LAUDERDALE, Fla. — The Computer Systems Division of Harris Corp. has announced a three-tiered maintenance service that the firm claims will significantly lower users' maintenance charges.

The three levels include the Harris standard service, which features a four-hour response time; a basic monthly service featuring priority response and regular preventive maintenance; and on-call maintenance service, which is charged on a time and materials basis, the vendor said.

The standard service costs $2,120/mo for an average configuration and the other services are priced on an as-used basis, Harris said. The vendor may be reached at 2101 W. Cypress Creek Road, P.O. Box 6200, Fort Lauderdale, Fla. 33310.

# Series 90 Memory System Gets 32-M Byte Addition

SUNNYVALE, Calif. — An addition to the Series 90 General-Purpose Memory System, which can store up to 32M bytes using 64K-byte random-access memory chips has been introduced by Intel Corp.

Designed for low cost, the System 91 provides twice the density of the System 90, according to the firm. The 32M-byte storage capacity is available in a 12-in.-high vertical-mount system including power supply. Up to 8M bytes can be accommodated in a 5¼-in. horizontal mount system, including power supply and cooling, the vendor said.

As with the other two members of the Series 90 systems, the System 91 is offered with either an error correction enhancement (ECX), featuring error checking and correction (ECC), or an intelligent memory enhancement (iQX) featuring ECC, memory fault tolerance, advanced diagnostics and mainteneance features. Cycle times for the ECX version are 500- or 650 nsec and the iQX version has cycle times of 650- or 800 nsecs, according to the vendor.

The cost of a fully tested System 91, with 256K-byte by 64-bit (2M-byte) configuration in the 5¼-in. chassis, with the ECX enhancement is $26,450, or $13,225 per 1M byte. Intel is headquartered at 1302 N. Mathilda Ave., Sunnyvale, Calif. 94086.

## *MFE Terminal Fits NCR Gear*

SALEM, N.H. — MFE Corp. has introduced a cassette terminal designed for reading and writing NCR Corp.-compatible tapes.

The Model 5450XL is said to read records up to 1,024 bytes long, storing up to 1M byte of data on a 450-ft tape. By increasing the buffer size, MFE has made the terminal compatible with all NCR equipment, including the NCR 2140 ECR, a spokesman said.

The unit features remote control binary and true-edit operations. The device costs $2,495, with OEM prices available from the firm at Keewaydin Drive, Salem, N.H. 03079.

# Data Entry Unit Accepts Writing

CHICAGO — Micropad, Inc. has introduced a data entry device that allows a user to enter data into a computer by hand printing it on a pressure-sensitive micropad that emulates a standard Ascii CRT terminal.

The Buffered Micropad allows users to enter a line or page of up to 512 characters at a time, edit and verify it on a built-in LED display, and transmit it to a local or time-sharing computer — eliminating the need for typing, according to the firm. The user can fill out specially designed forms and corrections are made by writing over previously entered characters.

The Buffered Micropad is an enhancement to the standard Micropad, introduced last year. Its 512-char. buffer memory eliminates the need to transmit row-column position data with each character and allows for local editing, using the built-in, single-line LED display, the vendor said.

In addition to reducing processing and storage costs, it allows users to sign onto time-sharing services, using standard 110-, 300-, 600- or 1,200 bit/sec modems, the firm said.

The device is of special use where a permanent hard-copy record is required, where personnel are unwilling or unable to use a computer terminal or where the physical environment does not allow it, according to the vendor.

The Buffered Micropad costs $3,100 from the firm at 35 E. Wacker Drive, Chicago, Ill. 60601.

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*Mr. Fred R. Meier, President, Business Machines Group, Burroughs Corporation.*

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# Color Graphics Display System Targets Users of IBM 360, 370, 4300 and 30 Series

MOUNTAIN VIEW, Calif. — A color graphics display system for IBM mainframes was announced here by International Applied Systems, Inc. (IAS).

The system consists of an IAS Model 1010 IBM on-line controller, a Ramtek Corp. 9000 series graphics display generator and, optionally, Intagraf, an Ansi/Siggraph core-compatible graphics software package, IAS said.

The IAS Model 1010 IBM on-line controller reportedly provides on-line capability for operating Ramtek 9000 series color graphics display systems with IBM 360, 370, 4300 and 30 series computers.

The Model 1010 operates on the IBM block multiplexor, byte multiplexor or selector channel, communicating in burst, forced-burst or byte-multiplex mode, according to the vendor.

### Extended Capabilities

The Model 1010 controller was designed to emulate the IBM 3250 Graphics Display System, but includes extended capabilities to support the color raster display features available with the Ramtek 9000 series display systems, according to an IAS spokesman.

Consisting of a set of Fortran subroutines that can be used to develop interactive color graphics application programs, Intagraf software is said to provide a device-independent graphics system.

The price of the IAS Graphics Display System includes installation and a 12-mo, on-site full parts and labor service warranty. The cost per workstation is less than $50,000 when ordered in multiple display configurations, the vendor said.

Deliveries are slated to begin in September, the vendor said from 831-H Sierra Vista Ave., Mountain View, Calif. 94043.

## *Printer/Plotter Outputs Page in 7 Sec*

SANTA CLARA, Calif. — Versatec, a division of Xerox Corp., has announced a 1,000 line/min printer and plotter, the V-80.

The unit prints a 132-col, 8½-in. by 11-in. page in seven seconds. The 132-col format can be printed without character compression or reduced resolution, and a 16 by 24 character cell provides 384 points to define a character, the vendor said.

V-80 options include an RS-232 serial interface, long-line drivers and receivers, an underline capability, a 96-char. Ascii character set in three fonts, a 124-char. set for scientific applications and a plug-in programmable read-only memory configuration for nine languages, the firm said.

The printer can plot an 8½-in. by 11-in. page with 200 point/in. resolution in seven seconds. With an optional controller, the unit can produce hard copy from a CRT terminal in 20 seconds, according to the vendor.

The V-80 costs $8,500, the vendor said from 2805 Bowers Ave., Santa Clara, Calif. 95051.

## Graphics Unit Prints in Color

ANN ARBOR, Mich. — Comshare, Inc. has announced a computer-based color graphics system that produces color images, prints and slides.

Execuchart allows users to create visual displays of financial or other information by using a "mouse" or pointer-type device. The device slides over an electronic surface and presses one of three buttons on the device to issue commands.

Other features include pictorial cues, production of graphs and charts and menu-driven software. The system is designed as an entry-level system for users printing up to 100 slides/mo. A larger system is available for users who print more than 100 slides/mo.

The terminal unit costs $14,000 or $525/mo plus maintenance. The executive console unit costs $45,000 with lease agreements starting at $900/mo plus maintenance, the vendor said. Each slide produced by the hardware costs about $11/mo, the vendor said from 3001 S. State St., Ann Arbor, Mich. 48106.

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# Mini Bits

## Wintek Prices Cut on 6800 Line

LAFAYETTE, Ind. — Wintek Corp. has announced a price reduction for its 6800-based micro modules, microcomputers and accessories.

Individual micro module prices have been reduced up to 50% with an overall average of 33%.

Erasable read-only memory programmers are now $99 and a single-board MCL14 computer with MPU, random-access memory, serial and parallel I/O is now $132, Wintek said from 1801 South St., Lafayette, Ind. 47904.

## Analyzer Runs on LSI-11 Gear

SAN DIEGO — Electro-Design, Inc. has announced the CAS-11, a system analyzer for LSI-11-based systems.

The unit does not require the user to give up a card slot in his system, but allows him to halt the CPU, single step it , run in real-time and run with the system data periodically collected and displayed.

The analyzer costs $4,650, the vendor said from Suite 2222, 530 B St., San Diego, Calif. 92101.

## Array Processor for Micros Out

LOWELL, Mass. — A fully programmable array processor designed specifically for microcomputers is available from SKY Computers, Inc.

The Skymnk provides high-speed floating point processing to technical, medical and scientific users who need the computation-intensive power of an array processor for such applications as radar, sonar, seismology, tomography, speech recognition and robotics.

The processor plugs into any Digital Equipment Corp. LSI-11 or 11/23 quad Q-bus backplane. It operates under RT-11 or RSX-11M for Fortran and Macro programs, and is capable of computing vector math, fast Fourier transforms and digital filtering.

The Skymnk costs $5,990 from SKY at P.O. Box 8008, Lowell, Mass. 01852.

## Intel Users Get 8080 Module

WESTLAKE VILLAGE, Calif. — An 8080 memory module designed by Chrislin Industries, Inc. for Intel Corp.'s Intellec, MDS 800, SBC 80/10, SDK-86 and BLC 80/10 microcomputers is now available from the firm.

The memory is said to feature easy expansion to 32K-, 48K- or 64K bytes on a single board and reportedly is compatible with both 8-bit and 16-bit multibus-based systems.

The CI-8080 plugs directly into the memory slot of the MDS 800 and the SBC 80/10. Data access time is 270 nsec and cycle time is 400 nsec. Available with battery backup capability, the memory is addressable in 4K increments up to 64K words.

Prices are $475 for the 16K by 8 version and $575 for the 64K by 8 version from the firm at 31352 Via Colinas #102, Westlake Village, Calif. 91361.

## Memory, LSI-11/23 MPU Tied

GARRISON, N.Y. — A Digital Equipment Corp.-compatible memory and LSI-11/23 CPU card combination with a high-density memory board has been announced by Cyberchron Corp.

The CDF-11-HK consists of the DEC LSI-11/23 MPU and a CDM-77/03R memory that offers either 128K- or 256K bytes of memory on a single dual-height card with a memory access time of 200 nsec.

The CDF-11-HK is priced at $4,995 from Cyberchron Corp., P.O. Box 164, Manitou Road, Garrison, N.Y. 10524.

# Micro-Based Decmate Out For Small Business Use

MAYNARD, Mass. — Digital Equipment Corp. last week unveiled a multipurpose microcomputer-based system for small business and individual applications in large corporations.

Physically resembling DEC's popular VT100 terminal, the Decmate is a backplane-oriented small computer that uses a single microprocessor to operate the unit's CRT display and handle its applications software.

Although the system can perform a variety of word processing functions and was formally introduced last week at the Syntopican IX office show in Atlanta, DEC product manager Gary Coles described the system as more of a "work" processor than a word processor.

### No Glorified Typewriter

While the system can fit into the office and be used by professionals as a workstation, it is a multifunction-style machine and not a glorified typewriter, Coles maintained. In fact, the system has more than a dozen standard software packages that do everything from financial modeling, records management and system-to-system communications, he said.

It can also be programmed in several languages including Basic, Fortran and DEC's business-oriented language (Dibol).

The computer's microprocessor, the 6120, is custom designed for the machine and reportedly executes an instruction set that is a "substantial enhancement" of DEC's PDP-8 architecture. The CPU is said to execute instructions at a rate of 400,000/sec and has a 1.5M byte/sec system bus. The system has a basic memory of more than 32,000 words.

Additional on-board memory is also incorporated within firmware to constantly update the CRT screen's contents and take care of other system control functions.

The system has the general appearance of the VT100 terminal because it incorporates that terminal in its design. The 12-in. CRT displays 24 rows of 80 characters or 14 rows of 132 characters, and has a transmission speed of 9,600 bit/sec.

The Decmate's present disk capacity ranges from a minimum of 1M byte to a maximum 3M bytes of floppy disk storage. Eventually, the system's capacity will be boosted to 43M bytes, the majority of that contained in DEC's RL02 hard disk.

Both hard disk and floppies can be used on the same machine. However, users will have to wait before adding the new RL02 14-in. removable hard disk drive to the system — each supplying 10M bytes of space — because the firm has yet to announce pricing or exact availability on that product.

### Communications Lines

Decmate has two serial communications lines and can communicate in an asynchronous, byte-synchronous or bit-synchronous modes.

Operating systems include DEC's COS-310 and OS-78, and the unit can use either a 30 char./sec dot matrix and graphics printer, a 180 char./sec bidirectional printer or a 45 char./sec letter-quality printer.

Finally, applications software includes word processing, executive office management, applicant tracking, mailing, financial management, accounting modules and other related packages.

As part of its Decmate introduction, DEC also announced its first service contract covering both hardware and software, essentially an integrated support program allowing the user one point of contact in the event of problems.

In its basic configuration, the Decmate includes the processor, CRT, a desktop printer and a dual-diskette floppy drive capable of storing up to 125 pages of text per document diskette

The system cost ranges from $6,795 to about $10,000 with floppy disk storage. Prices will be higher for systems with hard disk add-on storage.

DEC is headquartered in Maynard, Mass.

# General-Purpose Micron 800 Boasts Local-Net Design

LA JOLLA, Calif. — A series of general-purpose computers said to utilize the "latest design philosophies" of local-network/distributed processing architecture has been introduced by Micro Business Applications, Inc.

The Micron 800 series reportedly supports from one to 15 terminals locally or remotely through telephone hookup, providing each terminal with its own CPU and random-access memory (RAM) linked through a common data bus — specifically, Intel Corp.'s Multibus.

The Winchester hard-disk drive is offered with either 10-, 20-, 40- or 80-million character storage capacities. Each cartridge holds up to 17 million characters.

The system's Management Information System (MIS) set of software programs — designed by Coopers & Lybrand, Inc. — includes order entry/sales analysis, inventory control, bill of materials, purchase order tracking, general ledger, accounts receivable, accounts payable and payroll.

A basic Micron 840 system, consisting of microprocessor and 64,000 characters of RAM, intelligent disk controller, tape controller, tape cartridge drive, Winchester disk drive, video display monitor/keyboard and 125 line/min printer, costs "under $25,000," a spokesman said from Suite 15, 11568 Sorrento Valley Road, San Diego, Calif. 92121.

# *Disk Subsystem Runs on PDP-11s*

GARRISON, N.Y. — Cyberchron Corp. has made available a high-density Winchester disk subsystem for the Digital Equipment Corp. PDP-11/03 and PDP-11/23 microcomputers.

The CHD-11 disk subsystem employs an 8-in. voice coil-actuated Winchester disk drive that offers up to 40M bytes (20M bytes standard and 20M bytes optional) of formatted capacity.

The unit utilizes an intelligent controller that contains an automatic bootstrap and is completely hardware- and software-compatible with the DEC RL01/RL02. The disk subsystem features full DMA transfer capability, an on-board eight-sector buffer for automatic DMA throttle control and high-speed disk rotation that provides a 50% improvement in disk rotational latency time, the firm said.

The CHD-11 costs $6,495 from the vendor through P.O Box 164, Manitou Road, Garrison, N.Y. 10524.

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# Two More Micros Added To Computhink Eagle 32s

SUNNYVALE, Calif. — Computhink, Inc. has announced two microcomputer systems based on the Motorola Semiconductor Products, Inc. 68000, 16/32-bit microprocessor chip.

Models 10 and 20 of the Eagle 32 family are said to be similar except for the quantity of mass storage available as standard features of the systems. Each has a 128K-byte main memory.

While the Model 10 has a 1.6M-byte storage capacity expandable to 3.2M bytes on 5¼-in. floppy disk, the Model 20 features 2.4M-bytes storage capacity expandable to 4.8M bytes. Both systems are expandable to 1M byte of main memory, the vendor said.

The Eagle 32 is essentially a dedicated commercial or scientific application system and features menu-driven functions within the software. Initial deliveries will include a batch operating system, Basic-Plus, Forth-Plus and Tiny Fortran. A Winchester-type hard disk is offered in 10M-byte and 20M-byte versions.

The Model 10 with 128K bytes of main memory and dual 5¼-in., 1.6M-byte floppy disk drives costs $6,650. The Model 20 with 128K bytes of main memory and dual 8-in., 2.4M-byte floppy disk drives costs $7,650. The firm is located at 965 W. Maude Ave., Sunnyvale, Calif. 94086.

# *Lexiscope 4000 Works With DG Machines*

WALTHAM, Mass. — Lexicon, Inc. has announced a microprocessor-based CRT terminal with intelligent graphics and alphanumeric display capabilities for Data General Corp. machines.

Called the Lexiscope 4000, the unit provides medium-resolution monochrome graphics display using raster scan technology with a 560 by 500 fixed resolution. Features include vector generation, selectable plotting modes and line styles, elastic line plotting aids and graphics text with multiple sizes, styles and orientation, according to the vendor.

The Lexiscope 4000 is manufactured as add-in subsystems on any DG Nova or Eclipse processor. It is microprocessor-based and plugs directly into the backplane of the host processor, the vendor said.

The unit is available as a system or as separate components that can be integrated into an OEM system. A complete Lexiscope 4000 costs $3,400, the vendor said from 60 Turner St., Waltham, Mass. 02154.

# Turnkey System Available For Education, Training Uses

FORT LAUDERDALE, Fla. — Modular Computer Systems, Inc. (Modcomp) has announced a computer-based education package for education and training applications.

Called Simpler, the system can be applied as a dedicated turnkey education system supporting up to 32 terminals. It also may be embedded into a current on-going application. The system uses Modcomp's Max IV real- time operating system.

Simpler provides a high-level language called Tudor that was designed specifically for course authors.

Simpler is available in three turnkey systems and one software-only system. SCBET/8 supports up to eight terminals and is based on a Classic 7840 processor with 512K bytes of main memory. It costs $106,880. SCBET/16 supports up to 16 terminals and uses a 1M-byte Classic 7840 processor at a cost of $145,880. SCBET/32 supports up to 32 terminals and uses a 1.5M-byte processor for $215,065. The software costs $45,000 from P.O. Box 6099, 1650 W. McNab Road, Fort Lauderdale, Fla. 33310.

# RAM Card Increases Memory of Apple II

TORRANCE, Calif. — Computer Stop is offering the CS16K Random-Access Memory Card to increase Apple Computer Inc.'s Apple II memory from 48K bytes to 64K bytes.

The RAM Card costs $195. Computer Stop is based at Suite L, 2545 W. 237 St., Torrance, Calif. 90505.

# Micro Designed For Insurance

ATLANTA — A multitask microcomputer system aimed at the independent insurance agent and priced at under $15,000 has been announced by Management Cybernetics International.

The Microcomputer System combines the heart of the software from the firm's On-Line Terminal System with the Tandy Corp. TRS-80 Model II Business Management Computer, the firm said.

The system features accounting and account management data, end-of-month reporting, on-line inquiry and customer history maintenance, as well as word processing, the vendor said.

The firm is located at 1567 Mount Vernon Road, P.O. Box 888467, Atlanta, Ga. 30338.

# BASF Releases Disk Cartridge

BEDFORD, Mass. — BASF Systems Corp. has announced a Phoenix-type disk cartridge and a 300M-byte disk pack for Control Data Corp.-compatible disk drives.

The BASF 681 is a 16M-byte Phoenix disk cartridge compatible with CDC's Model 9448 drive. It also runs on compatible drives including Honeywell, Inc.'s M 4030, Wang Laboratories, Inc. 2280 and Prime Computer, Inc.'s 4332, according to the vendor.

The unit contains one 75-mil platter with one servo surface and one formatted surface.

Storage density is 384 track/in. and 6,038 bit/in. The unit costs $275, the vendor said.

The BASF 1263 is a 12-in. high, 300M-byte storage module compatible with CDC's 9766, Honeywell's M 4190 and Digital Equipment Corp.'s RM05 drives, the vendor said.

The pack has 10 recording disks, 19 recording surfaces and top and bottom protective disks. Disks are .075-in. thick and 14-in. in diameter. Track density is 384 track/in. and bit density is 6,038 bit/in, the vendor said.

The unit costs $1,100, the vendor said from Crosby Drive, Bedford, Mass. 01730


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For example, the 11/M1 system shown on the right weighs only 14 pounds yet contains 102kb of mini disk storage (expandable to 389kb), 64kb of RAM, space for up to 16kb of EPROM, 4 serial ports, and the LSI-11/2 CPU. All of this for less than $4000. While the 11/M1 will run the RT-11 operating system, it is best suited for dedicated applications where its small size but large processing power are needed.

Near the other end of the scale is the 11/H23-DDF system shown at the left. The mobile enclosure includes the LSI-11/23 processor, 256kb main memory, 10mb of storage on the double density RK-05 cartridge disk and 1.2mb on the double density floppy disks. This system also has 4 serial ports and 7 empty dual width slots for additional interfaces. The $22,500 price includes the video terminal shown, a 150 CPS matrix printer, and the RT-11 operating system.

These are just two examples of the many LSI-11 based systems available from Andromeda. And the standard systems are just starting points; we will provide any combination of package, processor, memory, interfaces, and peripherals to meet your requirements. In addition to general purpose systems, we also have turnkey packages for word processing, time-sharing, data acquisition, and graphics.



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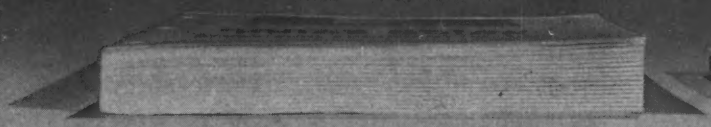
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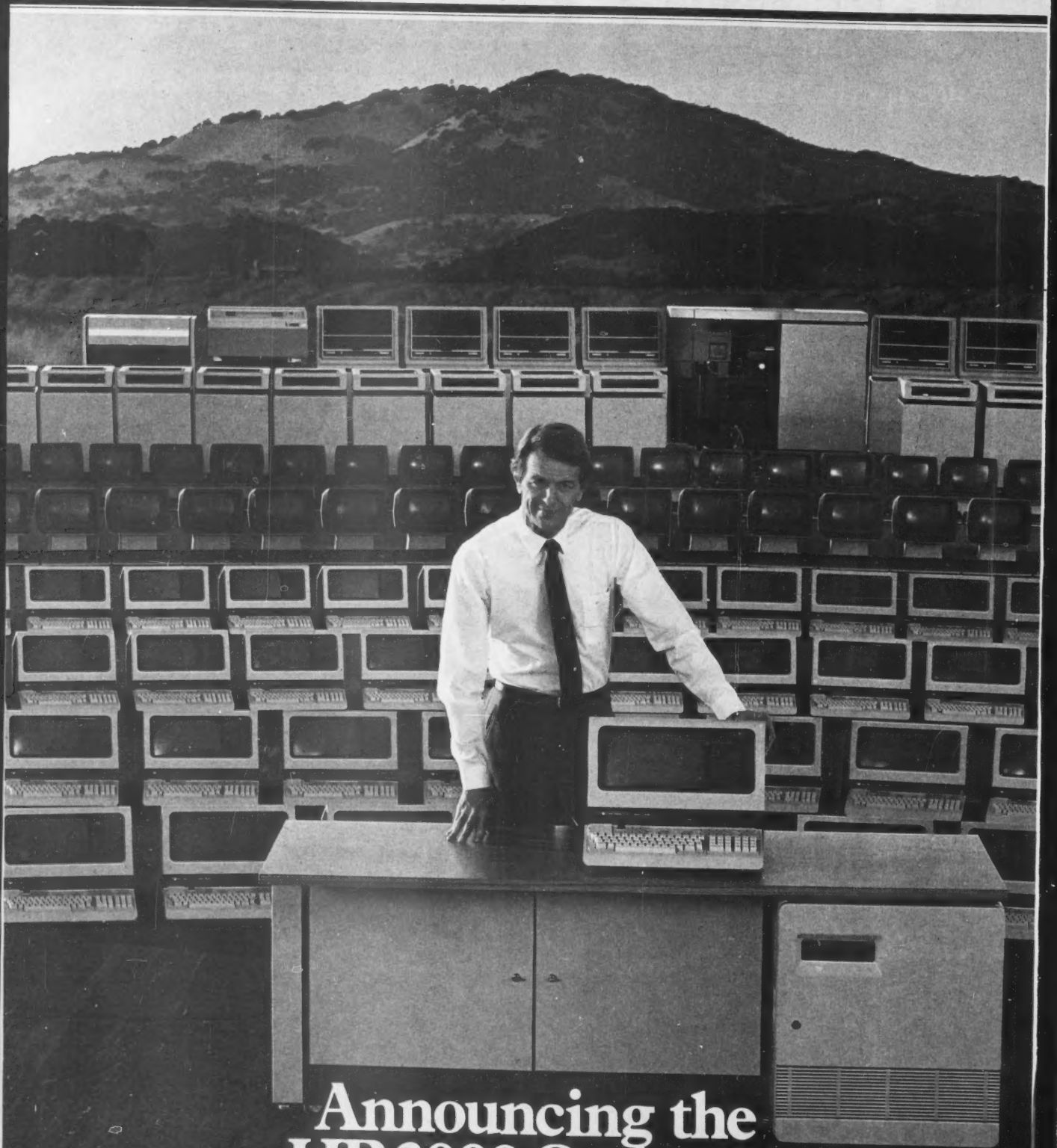
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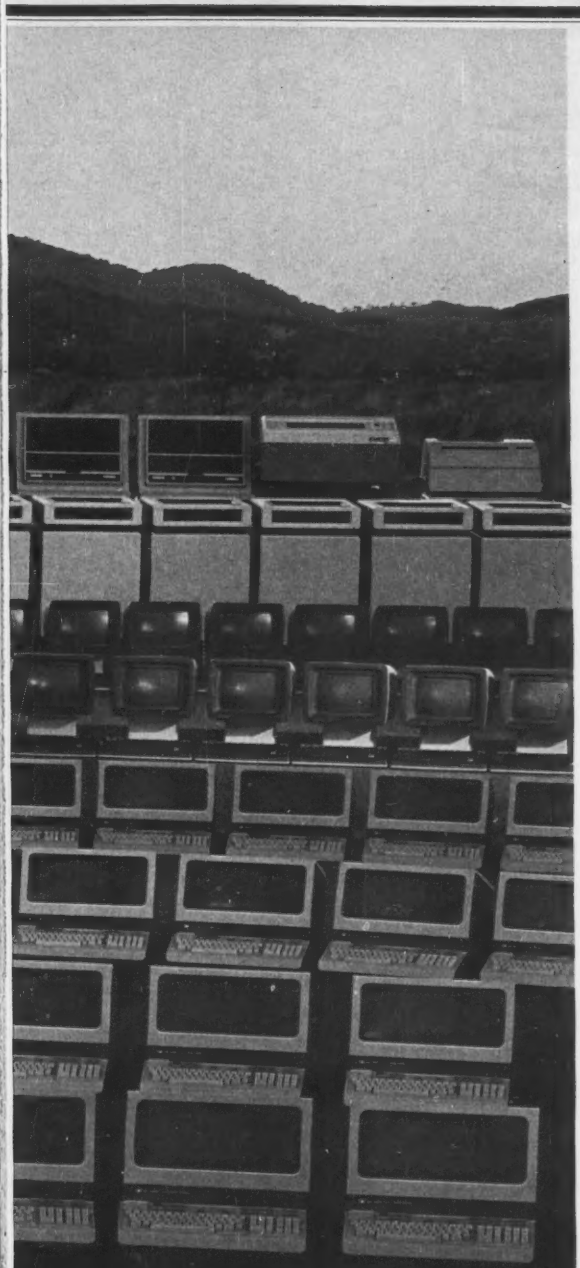
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Consider the burden facing data base management in such an environment.

## Users must be able to distribute a data base not only across multiple processors, but also across multiple systems in a network.

If the data base model is dependent on hard coded pointers within the files, updating all these pointers is a nightmare. The problem is compounded if any one remote location is not available at the time of an update. Without concurrent access, the state of the data base is potentially inconsistent.

These pointer problems make both hierarchical and network data base models inflexible and difficult to modify. When the requirement to move files and applications among processors and among systems is coupled with the need to maintain the ability to transparently access the data base from any point in the network, the problems become staggering.

## The solutions are in the relational database model.

A relational data base is a collection of data items represented logically as two dimensional tables. Files use logical fields within records as their only required linking mechanism. Users need not be concerned about details of structure, only about the logical relationships which exist between files. This simplicity and the ease of use inherent to relational data bases has been obscured historically by attempts of vendors to shoehorn or add on relational structure to a conventional operating system. The results are laboratory curiosities, interesting but cumbersome, and they give relational models an undeserved reputation for poor performance.

## The Tandem data base management system, ENCOMPASS, is the world's first on-line relational DBMS designed right into the operating system.

It is optimized for high performance and NonStop™ operation. Residing in each processor, ENCOMPASS provides complete independence from concerns about physical location of data. A user or an applications programmer need only know the file name of the data, peripheral device or system to be accessed.

## Fully integrated into the operating system, the data base system handles enormous numbers of transactions with speed and efficiency.

Using ENCOMPASS, we can go straight from "Read Record A" to the correct disc without having to utilize the intervening software steps typical of other systems: a) DBMS translating the command into appropriate instructions, b) data base access methods determining where the data is located and translating the instruction to appropriate disc addresses and c) I/O services, part of the operating system, finally performing the actual retrieval.

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## *Office Automation: What Is It?*

Office automation — everybody's talking about it, but does anyone know what it is and when it will really happen?

*Computerworld* will examine the office automation phenomenon in a September Special Report that will help answer just how far down the technological road the "paperless office" is. Innovative uses of the new technology will be spotlighted; innovators in the field will discuss issues and implementation techniques.

If you have any case histories of your own — successes, failures, sure-fire ways to sell office automation to management, your staff or even yourself — let CW know. Six- to 10-page typewritten, double-spaced manuscripts can be sent via facsimile, electronic mail or even the old-fashioned U.S. Postal Service to Ann Dooley, Editorial Department, *Computerworld*, P.O. Box 880, Framingham, Mass. 01701.

# Mail Software For 8100 Systems Enhanced by IBM

WHITE PLAINS, N.Y. — IBM is offering an enhanced version of its Distributed Office Support System (Disoss), an electronic mail system that distributes documents from IBM 8100 sites to host computers and then to recipients at other remote locations.

Disoss Version 2 reportedly routes and stores documents on-site automatically, enabling users to avoid searching the host library to receive documents that have accumulated since the last inquiry. Now a list of all documents that have arrived, along with subject, date, name of sender and action requested, can be reviewed.

The enhancement was made possible through two new programs, the vendor said. One resides in the host computer and provides central "electronic library" distribution facilities and security integrity for the network. The second, which resides in remote IBM 8100 information sys-

*(Continued on Page 66)*

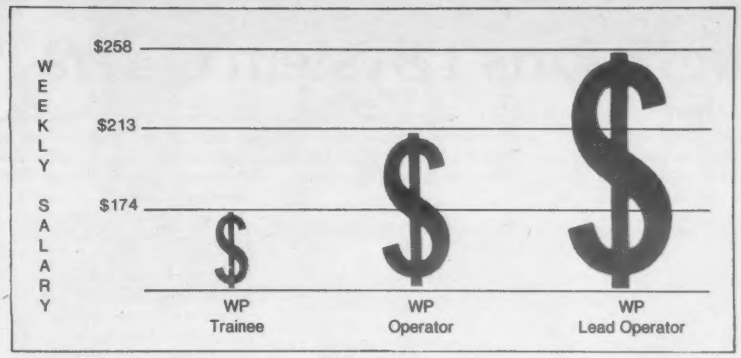
# Wangwriter Price Slashed by $1,100

LOWELL, Mass. — Wang Laboratories, Inc. has reduced the price on its Wangwriter to $6,400, nearly a 15% reduction from the original price of $7,500.

The price reduction signals the firm's intention to "aggressively pursue the leadership role in the stand-alone arena," according to Wang. The new pricing will compete directly with the recently announced Xerox Corp. 820 desktop computer that sells for $6,395.

Five percent to 20% discounts will be given on volume purchases, Wang said. Similar international discounts are available. The company also noted it plans through the end of the year to add several enhancements dealing with the Wangwriter's ability to support teletypewriters, IBM 3270 CRT terminals, a second diskette device, advanced text editing features and the CP/M operating system, all upgradable from the present system.

Wang is headquartered at One Industrial Ave., Lowell, Mass. 01851.




**WP Salaries**

# Salary Survey Finds WP on Par With Clericals, DP Operators

**By Ann Dooley**
CW Staff

WILLOW GROVE, Pa.— Although salaries for word processing operators are climbing steadily, they do not appear to be substantially higher than salaries for non-automated clerical workers or computer operators.

Clerical workers overall — including WP operators — were earning an increased 9.5% as of January compared with January 1980 figures. The weekly salary averages for clerical workers is $219, with salaries ranging from $168 for file clerks to $293 for executive secretary/administrative assistants. Word processing operators' salaries averaged $215/week compared to a weekly salary average of $276 for DP employees .

The salary results are from the Administrative Management Society's (AMS) "1981-82 Office Salaries Directory," which reported on 13 clerical and four DP positions, with three word processing jobs added for the first time.

Salary and fringe benefit information was obtained on 498,760 employees with 5,970 companies in 122 North American cities. All salary figures are as of January 15.

*The picture for WP salaries is mixed. WP operators are reporting steady increases but are trailing their DP computer operator colleagues in take-home pay.*

The three word processing positions included in the survey were trainee, operator and lead operator. Average weekly salaries were: trainees, $174; WP operators, $213; and lead WP operators, $258, according to the survey results.

In the DP category average weekly salaries were: data entry operators, $212; computer operators, $270; programmers, $344; and programmer analysts, $405. The survey also polled respondents on the type of fringe benefits and personnel policies currently existing in their companies.

Nearly two-thirds (64%) of the firms institute a 40-hour week, while the 37½-hour week occurs at 17% of the firms. The survey also found that 54% of the firms are giving employees 10 or more holidays, up 5% in the last two years, and 17% are giving nine holidays in 1981.

In terms of vacations, 81% are giving em-

*(Continued on Page 66)*

# Burroughs Debuts Integrated System Called Ofis 1

NEW YORK — Burroughs Corp. has announced an integrated office automation system that offers word processing, electronic filing, optical character recognition (OCR) input and host computer communications.

Made up of modular components compatible with other vendors' equipment, the Ofis 1 system includes the Ofiswriter word processor, the Ofisreader OCR text input device, the Ofisfile electronic file and the Ofisdirector information processor.

A general-purpose keyboard and display called Ofisworkstation, an inquiry and display station called Ofisterminal and printers are also available for the system, Burroughs noted.

### Variety of Models

The Ofiswriter word processor is available in a variety of models ranging from basic half-page displays to full-page display systems, Burroughs said. The unit can operate stand-alone or as part of the system through its communications capabilities, the company added. The price for the Ofiswriter starts at $5,495 or $173/mo on a three-year lease, Burroughs noted.

Another component of the system is the Ofisreader high-speed OCR machine, which is capable of reading eight of the most commonly used Courier font types.

It can also read Letter Gothic, Prestige

*(Continued on Page 64)*

# From Honeywell: The Infowriter, WP Enhancements

WALTHAM, Mass. — A single-station, user-installable Infowriter system and a number of word processing/office automation software enhancements have been introduced by Honeywell, Inc.

Designed for smaller offices, the Infowriter can operate on a stand-alone basis or as part of an office network. With its OAS/1 software, it can support document processing functions along with optional electronic mail and record processing capabilities.

The Infowriter reportedly can share DP files with the remote host system in a synchronous communications line up to 9,600 bit/sec when being used as part of an office network.

Using its optional interactive transaction facility modules, the Infowriter can be made to appear to a remote IBM or Honeywell host as similar to a synchronous

*(Continued on Page 64)*

# Burroughs Ofis 1 System Offers WP, OCR

(Continued from Page 63)

Elite and OCR B fonts according to Burroughs. The unit can be connected directly to the Ofis 1 system or be linked by telephone lines to remote locations, Burroughs added. The Ofisreader sells for $10,900 or $675/mo on a three-year lease.

The Ofisfile and retrieval system works on a proprietary file searching technique that, according to Burroughs, eliminates the need for coding keys. A name, word, date or phrase is all that is needed to identify and retrieve documents, the company said.

Ofisfile will accommodate up to eight terminals and can be located up to 100 ft from the unit without a modem and up to 1,000 ft away with a "short-haul" modem, the company added. The basic Ofisfile with 80M bytes of storage is priced at $59,400 or $1,916/mo on a three-year lease.

The company said initial availability of Ofisfile will be in the fourth quarter of 1981.

### Information Processor

Burroughs calls its Ofisdirector a versatile information processor that is the key to its Ofis 1 system. The company said that it provides access to computer-stored data and enables a user to share working files, a central printer, the Ofisfile and the Ofisreader.

A single Ofisdirector can connect several departments with Ofis equipment and is compatible with other vendor mainframes including IBM. Additionally, it can connect to Ofisworkstations and display terminals, Burroughs said.

Prices for the Ofisdirector range from $33,500 to $60,000 depending on users' needs and current equipment. Monthly rates for three-year leases range from $1,000 to $2,000, the company said. Burroughs also noted that availability on the unit will be in the first quarter of 1982.

The price for the Ofisworkstation is $2,745, and $1,500 for the Ofisterminal. Ofis 1 desktop printers are priced starting at $4,350.

Burroughs said that the Ofis 1 system was deliberately designed to work with most other makes of office equipment and computers so users need not discard equipment they are already using.

More information can be obtained from Burroughs Office Systems Group, 30 Main St., Danbury, Conn. 06810.


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Edited by Tim Scannell, "Minis and Superminis" will give you the most up-to-the-minute information on the mini/supermini explosion. You'll read application stories and tutorials from industry experts telling you:

- Who is using these machines and why.
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If you're a manufacturer or dealer in mini or supermini equipment, we have some very interested readers who would like to hear from you. Ad closing date is July 10th. Call your **Computerworld** salesman for more information and complete assistance in ad planning. Or, to reserve space, call Frank Collins at (617) 879-0700.

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## Small Offices Get Infowriter

(Continued from Page 63)

terminal with attached printer.

The built-in processor contains 128K bytes of main memory, one synchronous communications line, one printer port and two dual 650K-byte minidiskettes to provide 1.3M bytes of formatted storage capacity. A CRT terminal display and separable keyboard are included.

The Honeywell enhancements include the Administrative Systems 4 and 16 dedicated multiterminal systems and the WP 6 facility that integrates WP and DP. The enhanced versions of the four and 16 workstations are the OAS/4 and OAS/16.

The OAS Facility Mod 200 and OAS Facility Mod 400 are the enhanced versions of the WP 6. They were designed to increase WP/DP capabilities on the Honeywell DPS 6 and Level 6 small computers running under the GCOS 6 Mod 200 and Mod 400 operating systems, respectively.

First customer shipments of the Honeywell Infowriter and OAS software are scheduled for September. The single-station Infowriter with memory, diskettes and keyboard costs $6,595, plus an annual maintenance fee of $830.

The Infowriter with a 35 char./sec letter-quality printer sells for $8,395 plus $1,000 annual maintenance. With a 55 char./sec printer, the price is $10,495 plus the $1,000 annual maintenance charge.

The OAS/1 software has an annual license fee of $160 including software support. The optional electronic mail and record processing modules have an annual license fee of $260 and $130, respectively, including software support. The electronic mail and records processing are standard on the OAS/4 and OAS/16.

The OAS/4 and OAS/16 word processing software annual license fees are $1,145 and $2,095, respectively, including support. The license fee for both the OAS Facility Mod 200 and OAS Facility Mod 400 is $1,905, including software support. Honeywell is located at 200 Smith St., Waltham, Mass. 02154.

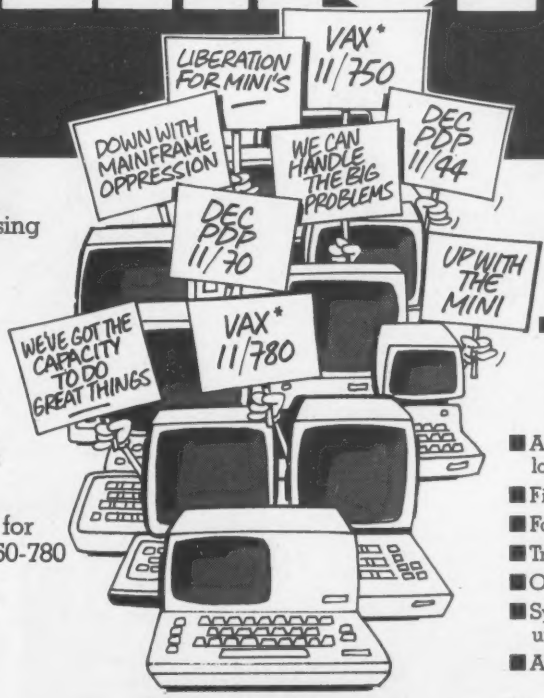
## Finance Series Out

STERLING, Va. — A series of software packages for the Lexitron word processor including Payroll, Accounts Receivable, Accounts Payable, General Ledger and List Management is available from Berman Associates.

The packages, requiring two diskette drives, are priced starting at $1,500 including installation and support.

Berman Associates is at Suite 114, 101 E. Holly Ave., Sterling, Va. 22170.

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# Office System Targets NCR Users

PACHECO, Calif. — Word/5, a multifunction office automation system developed for NCR Corp. users, has been released by Century Analysis, Inc.

Word/5 provides document creation, manipulation, inquiry and maintenance as well as indexing capabilities that include extensive storage and retrieval options, according to the vendor.

Documents can be entered at rough- draft speed by providing automatic carriage return and pagination, as well as back space and correct capabilities. Text is always within operator view, a spokesman said.

Using intelligent terminals as workstations, Word/5 offers the user 32K bytes of random-access memory storage to which code can be downloaded from the processor. A range of letter-quality remote printers can be attached for text output to either individual terminals or grouped workstation networks that print in a background task, the vendor said.

In addition, each terminal is also capable of functioning as an on-line interface to Century Analysis' Boss/3 teleprocessing monitor and the Plus/4 data base management system, providing multifunction workstation capability.

Word/5 costs $10,650 for the first workstation and $3,150 for each additional station. Century Analysis is at 114 Center Ave., Pacheco, Calif. 94553.

## Free Newsletter Covers WP Issues

EATONTOWN, N.J. — A four-page newsletter entitled "Easing the Transition to Office Automation" is available free from Syntrex, Inc.

The latest issue of "For the Automated Office" contends that if word processors are going to make things easier, they must fit, not change, the way people actually handle information in an office, according to Syntrex.

The newsletter can be obtained by writing Syntrex, Inc., "For The Automated Office," 246 Industrial Way W., Eatontown, N.J. 07724.

## 'Disoss' Speeds Review of Mail

*(Continued from Page 63)*

tems, furnishes the local processing, communications and user interfaces.

Mail-handling capabilities have been added that include the ability to assign follow-up dates so items will appear on the terminal at the appropriate time and the ability to view as part of the mail log the items filed in a file cabinet or in the computer system.

File retrieval has been simplified, according to IBM, which is also offering three formerly optional functions as standard features. These include a host print facility, Stairs input formatting and direct document viewing facility.

Disoss Version 2 will be available in the fourth quarter of 1982. The monthly fee for the basic license will be $975 for Disoss/370, $788 for Disoss/370/VSE and $164 for Disoss/8100/Dosf. Central service, including the IBM support center for the basic license, will be available, the vendor said. Distributed systems license options are also available.

Further information can be obtained from a local service dealer or from IBM at 1133 Westchester Ave., White Plains, N.Y. 10604.

## WP, Clerical Salaries on Par

*(Continued from Page 63)*

ployees two week vacations after one year of work, an increase of 5% over last year, and 52% are giving one week after six months, up 1%. Thirty eight percent grant three-week vacations after five years and 45% give three weeks after 10 years' service. Four weeks of vacation are given after 15 years' service by 35% of the U.S. firms.

The AMS report also outlined salary data for 122 North American cities, plus U.S. salary breakdowns by region and type of business. The report is available for $90 from AMS at 2360 Maryland Road, Willow Grove, Pa. 19090.

## *Jacquard System Aids Law Offices*

SANTA MONICA, Calif. — Office automation systems for law firms that offer data and word processing, on-line case retrieval and court stenography computer-aided translation have been announced by AM Jacquard Systems, Inc.

The shared-logic J100 and the stand-alone J500, each with 128K bytes of memory, can support one to 13 independent J105 workstations, a variety of printers and four disk drives with 320M bytes of storage.

The systems can access Westlaw, an on-line interactive case retrieval data base in Minnesota, by adding a 1,200 bit/sec Bell 212A-compatible modem to either machine.

For firms using court reporters, AM Jacquard introduced the Tomcat, a computer-aided translation system. Developed by Translation Systems, Inc., Tomcat captures a court reporter's notes on a magnetic tape cassette and then translates them into English using either the J100 or J500.

Tomcat has a universal dictionary comprised of more than 100,000 root words and 60,000 English words, AM Jacquard said.

A typical four-workstation J100 configuration sells for about $25,000 from AM Jacquard Systems, 3340 Ocean Park Blvd., Santa Monica, Calif. 90405.


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For more information, write or call: Astrocom Corporation, 120 West Plato Boulevard, St. Paul, MN 55107. (612) 227-8651. Or call toll-free 1-800-528-6050, ext. 1104.

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# WP Package From Trident Aids Novice HP 3000 Users

INGLEWOOD, Calif. — General-purpose word processing software designed to support inexperienced or occasional users of the Hewlett-Packard Co. 3000 system has been introduced by Trident Data Systems, Inc.

All operator messages and error messages are reportedly in plain English. The package includes a menu system and an on-line help function. No embedded commands are used in the text, so text is displayed during entry and edit as it would appear at output, the vendor spokesman said. A range of editing features exists and up to 99 different command sets can be specified for special document formats, he added.

The user license for Lastword costs $5,900 and a demonstration evaluation kit is available for $150. Trident is located at 11950 E. Aviation Blvd., Inglewood, Calif. 90304.

# Rexon Offers 'On-Word' For Small Users

CULVER CITY, Calif. — Rexon Business Machines Corp. has introduced On-Word, software that reportedly performs a full range of word processing functions on Rexon's small business computer systems.

The software allows users in a multiterminal system to perform WP applications while others are performing DP applications or combined DP/WP applications. Information can be merged from DP files with text and addresses in WP files, the firm said.

On-Word offers users of RX15, RX20-2 and RX30-2 systems basic editing functions, as well as more complex functions such as the preparation of financial statements and alphabetically sorted mailing lists. It can also be used in producing legal documents or other materials requiring heavy text revision.

On-Word also offers a Help feature, the ability to retrieve sequences of keystrokes stored on-line, and the ability to conduct global or selective searches for nine different character strings simultaneously.

A spelling dictionary, with 65,000 correctly spelled words including legal and medical terms, is included, as is a math capability.

Rexon has entered into a five-year contract with the developers of the package, Total Business Systems, Inc. of Albuquerque, N.M., to maintain On-Word software and provide enhancements. The software costs $2,000 and will be released in the fourth quarter.

Rexon is located at 5800 Uplander Way, Culver City, Calif. 90230.

# Printer Interface Links CPT Units

MINNEAPOLIS — CPT Corp. has introduced a printer interface that connects the CPT 6000 word processor to the CPT Rotary II printer to perform most of the features standard to the more advanced Rotary IV and Rotary V printers.

This interface allows CPT 4200 users to upgrade their word processing equipment with the purchase of a CPT 6000 console, the vendor said.

The Rotary II interface consists of a cable and an external power supply. A software disk to accommodate the Rotary II printer will replace the 6000 software disk.

The interface costs $375, installation and maintenance not included. CPT is located at 8100 Mitchell Road, P.O. Box 295, Minneapolis, Minn. 55440.

# *Syntrex Adds Statistical, Records Packages to 'Aquarius'*

EATONTOWN, N.J. — Syntrex, Inc. has introduced two packages for its Aquarius: a statistical package that reportedly simplifies the preparation of budgets, forecasts and financial summaries and a document-building and records processing package.

The statistical package includes a "folding" capability that handles documents up to 200 char. wide without getting lost in the columns. A user can freeze the descriptive information on the screen while scrolling, according to the firm. The package can add columns and rows, cross-foot and compute a total in seconds, the firm said. Column layout between margins can be done automatically and headings can be displayed on the screen in bold and centered formats, as well as a number of other mathematical computations.

The document-building and records processing package includes paragraph assembly feature, merge capabilities for automatic letter generation and a records processing facility.

Both the statistical package and the document-building and records processing package have a one-time license fee of $500. Syntrex is located at 246 Industrial Way W., Eatontown, N. J. 07724.


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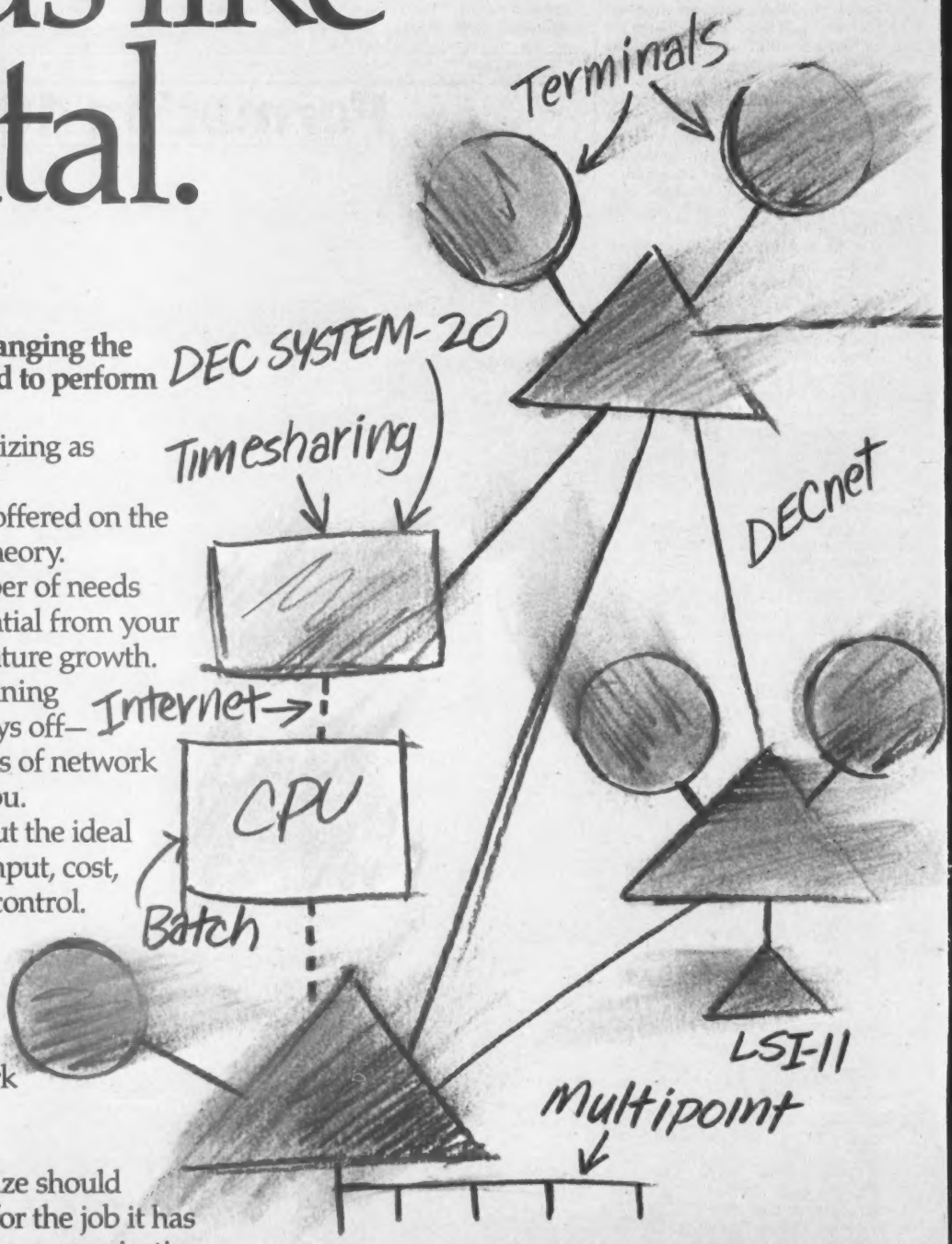
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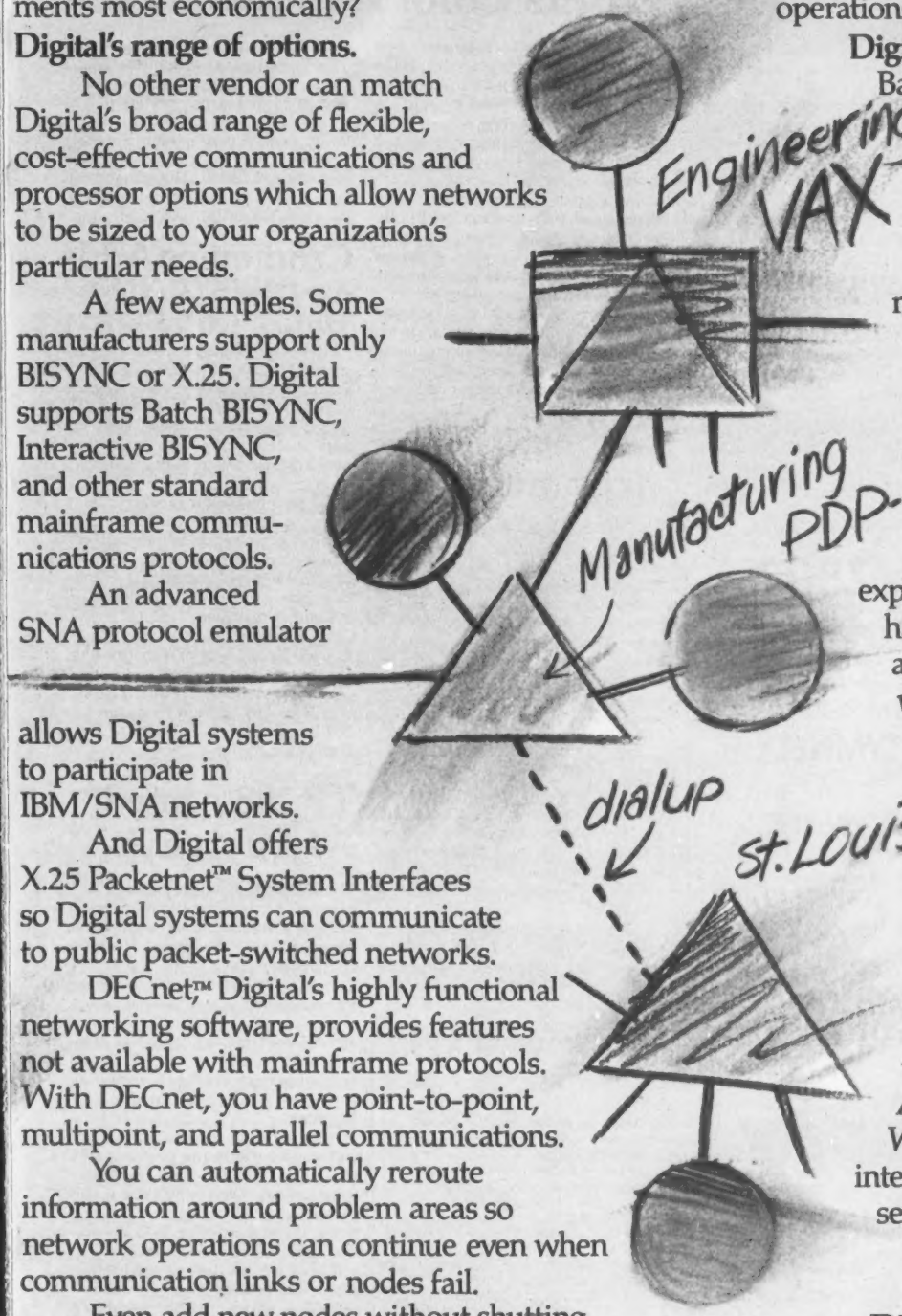
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# *Financial Reporter T/Maker II Mixes Word, Number Processing*

NEW YORK — Combining word processing and numerical data processing in a single disk, T/Maker II is being offered by Lifeboat Associates for use on microcomputers running under the Digital Research, Inc. operating system.

T/Maker II was designed for use in financial reporting applications in professional offices and small businesses and goes a step beyond the older Visicalc system, according to the vendor.

The software produces charts and exhibits for reports, and with screen text editing controls creates complete reports, according to Lifeboat Associates.

Users can also produce reports in a letter format by merging a preprogrammed mailing list without changing disks, according to the vendor.

The program is being offered for $275 including a user manual and reference card, the vendor said. Lifeboat Associates is located at 1651 Third Ave., New York, N.Y. 10028.

# Special Office Product Report Out

CHERRY HILL, N.J. — A special issue of "Officemation Product Reports" from Management Information Corp. evaluates and describes nearly 50 office products offered by 17 vendors at the 1981 International Word Processing Spring Symposium.

The 36-page issue details the products of Japanese entrants as well as products from the U.S. office automation firms.

Both products and trends are evaluated in the report, which costs $15 from MIC, 140 Barclay Center, Cherry Hill, N.J. 08034.

# Word Processing System Offers Color Enhancement

NORCROSS, Ga. — Intelligent Systems Corp. has introduced Spectra-Text, a color-enhanced word processing system its vendor said is compatible with Western Digital, Inc.'s CP/M operating system and can also be used as a small business system.

The Spectra-Text system is menu-driven and fully interactive, Intelligent Systems said. When used with the firm's color graphics business analysis software, color graphics can be created, a spokesman noted.

Standard features include dedicated function keys, selective global search and replace, block move/copy, document merge and Spectra-Calc — a program that allows users to perform math with screen processing.

The Spectra-Text system includes a 13-in. or 19-in. color graphics display, dual-disk drive, keyboard, CP/M operating system and Microsoft Basic and costs approximately $13,000. The Spectra-Text software package costs $950. The vendor can be reached at 225 Technology Park, Norcross, Ga. 30092.

# CPT 8000 Adds Accounting Use

MINNEAPOLIS — CPT Corp. has announced the Comprehensive Business System, which includes eight general accounting packages for the CPT 8000 word processor.

The packages include general ledger, accounts receivable, accounts payable, payroll, inventory control, financial analysis, job costing and job budgeting. Each module is integrated so that one package can automatically post another, according to the vendor.

The general ledger, accounts receivable, accounts payable and payroll programs cost $1,400 each. Inventory control costs $1,800 and the financial analysis package costs $1,000. Compupak, the firm's word processing package, and the CP/M cost $900.

The job costing and job budgeting packages will be available in July, the vendor said from 8100 Mitchell Road, P.O. Box 295, Minneapolis, Minn. 55440.

# Cromemco Adds 'Writemaster'

MOUNTAINVIEW, Calif. — Cromemco, Inc. is offering a display-oriented word processing program called Writemaster that reportedly incorporates a command structure approximating the flow of natural language, thereby aiding in operator understanding.

The Writemaster is capable of mail merging index generation and a number of text formatting functions. Single-keystroke commands are built into the software and all text formatting commands and function keys operate in real-time.

The Writemaster software package is available on 5-in. or 8-in. diskettes for $595 to run on the vendor's microcomputer systems. More information is available from Cromemco at 280 Bernardo Ave., Mountain View, Calif. 94043.

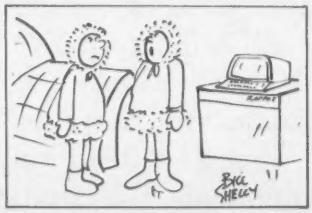
# TB 208 Aimed At Attorneys

HARTFORD, Conn. — A word processing and time-and-charges system designed for small attorneys' offices has been developed by RCL Computer Associates, Inc.

The TB 208, said to feature word processing features of Digital Equipment Corp.'s Datasystem 208, records all current transactions from time and cost sheets by employee and type of service rendered, including extending hours time variable billing rates.

Designed to speed the billing and collection cycle in the professional's office, the TB 208 also reportedly serves as a tool to analyze client and personnel profitability and productivity. Reports available with the system include personnel time analysis, a full set of journals, client balance report and billing/payment history.

The system costs $11,000, including the Datasystem 208 minicomputer, word processing and time-and-charges software, a spokesman said from 750 Main St., Hartford, Conn. 06103.



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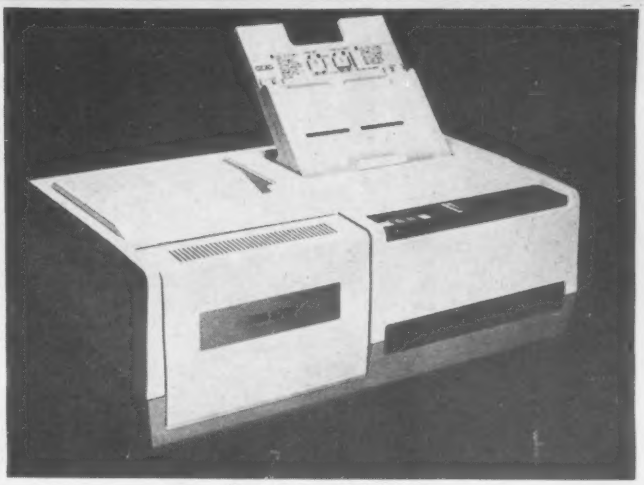
# Desktop Fax Unit Boasts Microprocessor Controls

MCLEAN, Va. — Southern Pacific/Distributed Message Systems (SP/DMS) Co. has introduced a desktop digital facsimile terminal that includes microprocessor controls, thermal printing and advanced electronics.

Dubbed The Electronic Mail Link, the DMS 2700 provides automatic sending and unattended receiving. Coupled with CCITT Group III and Group II capabilities, this offers full-network and international communications compatibility, according to the vendor.

A variable contrast control is provided that compensates for marginal input documents. The unit also has a "local copy" mode that lets the DMS 2700 double as a low-volume convenience copier, SP/DMS said. The unit operates at speeds up to 9,600 bit/sec and can deliver a typical page in 20 seconds.

A special introductory price for the basic unit is $227/mo or $170/mo with a meter charge. The vendor can be reached at 1700 Old Meadow Road, McLean, Va. 22102.



The Electronic Mail Link

# Copy System Gets WP Update

DOWNEY, Calif. — An enhanced version of Type Share, Inc.'s copy preparation system, offering users word processing and typesetting capabilities, is now available.

The latest product is said to combine the increased speed and expanded capabilities of the Commodore 8000 series CBM computer system with enhancements in the Type Share software to offer savings on typesetting costs.

The system captures copy on floppy disks and codes it for typesetting, a spokesman explained. Users send the disks to a Type Share center where they are input to computerized phototypesetters for finished copy. Less user responsibility and slashed costs are said to result.

A typical configuration includes the Commodore 8032 80-col display CBM computer with a dual-drive disk unit and software and sells for $3,775 from the vendor at 8315 Firestone Blvd., Downey, Calif. 90241.

# Synergistic Offers Interactive Package

E. THETFORD, Vt. — An interactive word processor package said to feature word fill, justify, insert, delete, overtype, center, search and append has been announced by Synergistic Systems.

Word-990 keeps the screen free of any special control characters and allows the user to see the document as it will appear when printed, the vendor claimed.

Word-990 is priced at $495, the firm said. Synergistic Systems is located at Cobble Hill Road, E. Thetford, Vt. 05043.

# Spellwriter Runs On WP, OCR Units

CHICAGO — Spellwriter, a stand-alone, desktop spelling verifier that reportedly works with any communicating word processor, optical character recognition unit or typesetting equipment, is being offered by Greenman-Woodward Co.

Spellwriter checks copy for spelling and typographical errors against a 60,000-word standard dictionary and a 20,000-word specialized dictionary entered by the user. It has a scanning rate of 3,000 word/min, according to the vendor.

The device costs approximately $3,000, the firm said. Greenman-Woodward is located at 200 E. Ontario St., Chicago, Ill. 60611.


The new VISUAL 200 terminal has the features of competitive terminals and will code-for-code emulate them as well. A flick of a switch on the rear panel programs the VISUAL 200 for compatibility with a Hazeltine 1500, ADDS 520, Lear Siegler ADM-3A or DEC VT-52. This allows you to standardize on the new, reliable VISUAL 200 for virtually all of your TTY compatible video terminal applications, with no change in the software you've written for the older, less powerful terminals. And you're not limited to mere emulation; you can outperform them at the same time by taking advantage of the additional features and human engineering of the VISUAL 200, such as:

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**FEATURE COMPARISON CHART**

| FEATURE | Visual 200 | Hazeltine 1500 | Hazeltine 1420 | Lear Siegler ADM-3A | Digital VT-52 | ADDS 520 | ADDS Regent 25 | ADDS Regent 40 |
|---|---|---|---|---|---|---|---|---|
| 24 x 80 Screen Format | STD | STD | STD | STD | STD | STD | STD | STD |
| 7 x 9 Dot Matrix | STD | STD | NO | NO | NO | NO | NO | NO |
| Background/Foreground | STD | STD | STD | NO | NO | NO | NO | STD |
| Insert/Delete Line | STD | STD | NO | NO | NO | NO | NO | STD |
| Insert/Delete Character | STD | NO | NO | NO | NO | NO | NO | NO |
| Clear End Line/Field/Page | STD | STD | NO | NO | STD | NO | NO | NO |
| Blink | STD | NO | STD | NO | NO | NO | NO | STD |
| Security Mode | STD | NO | STD | NO | NO | NO | NO | STD |
| Columnar and Field Tab | STD | NO | STD | NO | NO | NO | NO | STD |
| Line Drawing | STD | NO | NO | NO | STD | NO | NO | STD |
| Upper/Lower Case | STD | STD | STD | OPT | STD | NO | STD | STD |
| Numeric Pad | STD | STD | STD | OPT | STD | NO | NO | STD |
| Composite Video | STD | NO | NO | NO | NO | STD | NO | NO |
| Current Loop | STD | STD | NO | OPT | OPT | STD | STD | STD |
| Serial Copy Port | STD | STD | OPT | STD | OPT | NO | STD | STD |
| Hold Screen | STD | NO | NO | NO | STD | NO | NO | NO |
| Detachable Keyboard | STD | NO | NO | NO | NO | NO | NO | NO |
| Solid State Keyboard | STD | NO | NO | NO | NO | NO | STD | STD |
| Typamatic Keys | STD | STD | STD | NO | NO | NO | STD | STD |
| Cursor Addressing | STD | STD | STD | STD | STD | STD | STD | STD |
| Read Cursor Address | STD | STD | STD | NO | NO | NO | NO | STD |
| Cursor Control Keys | STD | NO | STD | NO | STD | NO | NO | STD |
| Secondary Channel | STD | NO | NO | STD | NO | STD | NO | NO |
| Self Test | STD | NO | STD | NO | NO | NO | NO | STD |
| Baud Rate to 19,200 | STD | STD | NO | STD | NO | NO | NO | NO |
| Smooth Scroll | STD | NO | NO | NO | NO | NO | NO | NO |
| Microprocessor | STD | STD | STD | NO | STD | NO | STD | STD |
| Tilt Screen | STD | NO | NO | NO | NO | NO | NO | NO |
| Switchable Emulations | STD | NO | NO | NO | NO | NO | NO | NO |

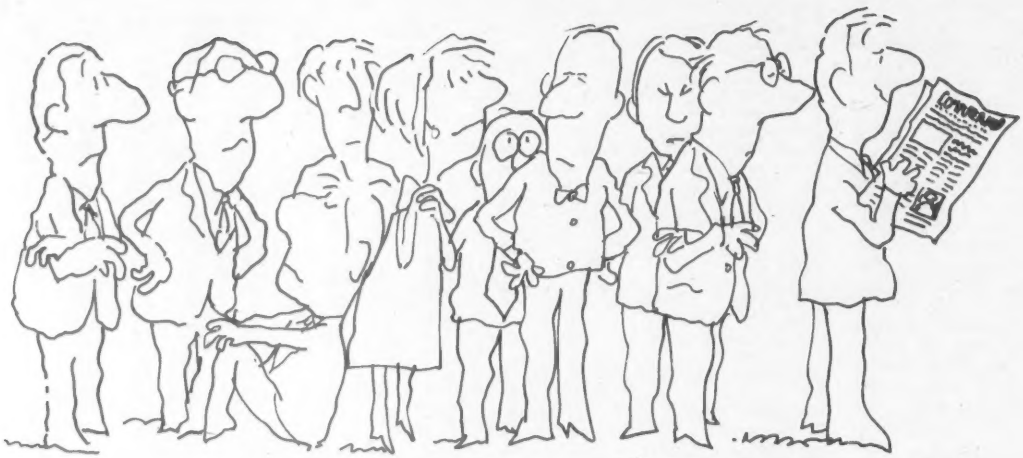
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# *Pansophic Chief Sees Software Dropping in Price By 1995*

**By Lois Paul**
CW Staff

LINCOLNSHIRE, Ill. — Software by 1995 will follow the same trend as hardware does now, dropping in cost and delivering solutions to software problems just as hardware has solved hardware problems.

Dave Eskra, president of Pansophic Systems, Inc., offered this projection as "one man's view" to the approximately 150 attendees at the Executive Communication seminar his company sponsored here recently.

In a talk entitled "The Solution Industry: An Economic Viewpoint," Eskra noted current factors within the industry such as the growing need for programmers, which will reach 28 million within 10 years. Added to this is the decrease in hardware costs and intense competition, particularly from what Eskra called "Japan, Inc."

"They have done everything we have taught them," he said, describing the Japanese as relentless, patient and long-term planners. "They have had an eye on the software market for 20 years now and want to enter."

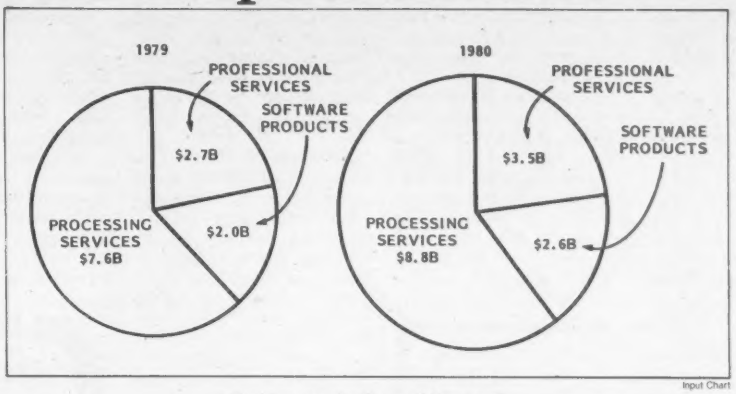
It is time for American business to deal with this competition more strongly, Eskra said, and one way to do this is to look at the way the Japanese use teamwork. The Japanese business climate is a combination of cooperation between government, labor and the financial area, he said.

"The U.S. is going to have to realize that it is this teamwork that is going to make or break us as competitors," he said.

He added that the leverage of software companies in this country is in their distri-

*(Continued on Page 74)*

# Revenues Up 21% in 1980 For Computer Services




Input Chart

**Performance by Type of Company**

**By Marcia Blumenthal**
CW Staff

NEW YORK — Despite continuing economic turmoil, revenues in the computer services industry grew 21% during 1980, with total industry revenue climbing to $14.9 billion.

Pretax profit margins for publicly traded processing service, software products and professional service firms grew at 28% and remained steady at 11.6% of revenue, Peter Cunningham, president of Input, Inc., reported at the eighth annual financial analysts meeting of the Association of Data Processing Service Organizations, Inc. (Adapso) held here last month.

Among trends emerging last year were dramatic rises in export revenue of software product and professional service sectors of the industry — 48% and 84%, respectively, noted Input, the Palo Alto, Calif.-based firm that performs the annual industry survey for Adapso.

Productivity, measured in terms of revenues produced per employee, was another significant industry measure during 1980. Professional service firms showed a 19% increase in productivity, with the industry as a whole racking up an impressive 12% increase.

Part of this productivity was based upon these firms' ability to raise the prices of their services because of demand, but less than 20% of industry growth was attributable to price increases, Cunningham observed.

"These firms are not just body shops anymore," Cunningham added, pointing out that research and development (R&D) expenditures for professional service companies was up 200% last year.

Processing service firms also pumped up their R&D contributions by 40%. "The computer is no longer the core of the service industry; information is the core," Cunningham said.

These companies are developing new services, a good example of which is graphics services being offered by a grow-

*(Continued on Page 75)*

# Comdex Vendors' Concern: Distribution

**By Marcia Blumenthal**
CW Staff

NEW YORK — Building a strong distributor network was a major concern of vendors exhibiting at the Comdex/Spring '81 exposition here late last month.

Comdex, one of the few trade shows that discourages attendance by end users, features as much dealmaking between exhibitors as it does among independent sales organizations (ISO) and vendors, one observer noted. This show featured some 300 vendors.

There is a lot of competition among vendors, such as Honeywell, Inc., that are vying for distributors, noted one company sales manager exhibiting Honeywell's DPS 6/92, a 32-bit minicomputer offering. "ISOs already have a lot of equipment installed and have a heavy investment in hardware and software," he said, noting general reluctance among dealers to take on new lines. "We'd like to have more good-sized distributors," he admitted.

Although the distinction between minicomputers and microcomputer-based products is blurring, ISOs are watching the battle of minis and micros with an eagle eye, some vendors remarked — a factor that is making dealers picky about the products they choose to carry.

Responding to that seemingly looming battle, in the near future Honeywell plans to introduce a micro product to be distributed through independents.

The outcome of the mini/micro small business system square off will depend in part upon how successful retail stores are, noted Ralph M. Armstrong, vice-president of marketing for Rexon Business Machines Corp. If stores move too slowly minis will continue to have an edge, he said. Rexon's products are built on minicomputer technology.

Like other vendors, Rexon sees too many small business system makers in the market competing for distributors. Moreover, many potential distributors are not adequately financed, charged Vane Crandall,

*(Continued on Page 74)*




CWCI Photo

**Exhibit Floor at Comdex**

# Exec Projects Lower Software Costs

(Continued from Page 73)
bution capability. "This is our strength, which will continue to help us lay off and overcome competition from our friends overseas."

"The end user has been the creator of demands. Now he must become involved in the development of solutions," Eskra said. Software companies' ability to provide solutions can only come by increasing the end users' role in application development.

Users just want the end results, he said, adding, "Our problem as software vendors is to teach the users that they can access data with ease and to develop the capabilities that allow them to do so."

Eskra said that the ability to store large volumes of data with speed and economy is not yet here, but the ability to access this data with simple English-like languages is here. "The solutions exist in the minds of vendors and they need to be brought to the table."

Software companies already have helped increase the productivity of programmers in the last five years, Eskra explained. The current concern is moving this productivity into the offices.

### Office Arena

"Spending growth in U.S. offices to administer themselves has been tremendous in the last 10 years," he said. American business is attempting to move decision-making down the organizational ladder. Middle managers have to become more productive. They need quick access to information. The demand for solutions must go into the software area, according to Eskra.

He cited the fact that the International Computer Programs, Inc. (ICP) awards for software packages that exceeded one million dollars in sales went to 29 companies in 1972 and this number increased to 432 in 1980. This growth has occurred because users have seen the immense value of software, Eskra said.

"The future earning potential lies in software," he said, noting the rapid growth of the public value of emerging technology companies. Pansophic itself registered with the Securities and Exchange Commission on June 19 for a public offering of 1,165,000 common shares scheduled for July.

"We are running out of time," Eskra said. The first computers in the '40s were built within universities for research purposes and half the time was spent maintaining them rather than using them, he explained. "Today, technology is an integrated part of running all our business. We need access to information and results.

"The software industry is trying to provide solutions and the key that we see evolving is high-level language development that provides ability for end users to employ simple languages similar to their own," he said.

"We must provide new ways to distribute those acres of silicon chips being built in the western part of our country," he said.

# Vendors Eye Distribution

(Continued from Page 73)
North American distributor sales manager for Altos Computer Systems, Inc. "However, as the market matures more powerful distributors that have strong financial backing will want to get into the market," he observed.

Although Rexon's Armstrong claimed Rexon was having little difficulty attracting dealers, he did note the firm was adding a lot of vertical market software, such as medical applications, to make its products more attractive to dealers. The medical small business system market has about 50,000 potential users, with only 4,000 systems currently installed.

Agreeing with Armstrong was John Bentibegna, Cado Systems Corp.'s national sales manager of vertical marketing, who said dealers were responding much more positively to vendors who offered software for special markets. Dealers know they are in demand by small business system makers.

Dealers are narrowing their choices of vendors based on software products, observed Harland Lavigne, vice-president of NEC Information Systems, Inc. "The key is software support like software hot lines and cooperative advertising," he said.


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*IBM Pushes for Change*

# High Profits Seen for Vendors Moving to SNA

By Jeffry Beeler
CW West Coast Bureau

CULVER CITY, Calif. — "Tremendous" opportunities for new business await terminal vendors that can make their products compatible with IBM's System Network Architecture (SNA), according to TCT International, Inc. president Saroj Kar.

But despite the huge potential payoff, many suppliers still balk at the thought of taking the SNA plunge because of the extreme complexity of the accompanying technology, Kar said during a recent TCT-sponsored seminar here.

Kar urged terminal vendors to overcome their SNA shyness and to use the architecture as a catapult to improve their product sales and expand their market shares. "Independent suppliers should simply go along with SNA rather than trying to fight it," the head of the Sunnyvale, Calif.-based consulting company advised.

IBM some time ago launched a concerted drive to force its customers to migrate from their existing communications protocols to SNA, and the effort appears to be succeeding.

About 900 IBM users have already become SNA converts, and within the next 18 months, the total will probably double. By 1984, the switch to SNA will have claimed approximately 70% of IBM's worldwide installed base, Kar predicted.

The reason for the expected migration to SNA is twofold. First, the architecture greatly outperforms more established data communications protocols like Bisynch and start-stop.

Second, IBM's customers will find themselves unable to upgrade to the company's next generation of advanced hardware and software if they continue to operate in a non-SNA environment.

### Impact of Demand

But demand for the industry giant's future SNA-compatible products, especially terminals and other peripherals, will likely prove so great that it will easily outstrip even IBM's vaunted production capabilities.

The resulting slack in the SNA-compatible terminal market will almost surely invite exploitation by opportunity-minded outside vendors, Kar explained.

"Within the SNA framework, the potential for a mixture of IBM and non-IBM hardware is tremendous," he added.

In many respects, the situation now facing independent terminal makers resembles the conditions that gave rise in the early 1970s to the plug-compatible mainframe and disk system industry. If they play their cards right, independent peripherals vendors — especially terminal manufacturers — stand a chance of becoming the Amdahls and Memorexes of their field.

But to take full advantage of the "excellent" business opportunity that SNA affords them, terminal suppliers will have to heed the example of the plug-compatible mainframe (PCM) industry, Kar said.

In short, just as PCMs were forced to adapt their wares to run IBM software, so will companies in the terminal sector have to make their products compatible with SNA.

Like PCMs, terminal vendors will also have to make sure their products offer significant price/performance advantages over their IBM counterparts, Kar said.

# Computer Services Revenues Up

(Continued from Page 73)

ing number of processing service companies.

In the software products arena, overall employment increased 31%, the highest of the three industry segments. There has been a major change in the software buying community, Cunningham said.

"Software products are no longer bought as a last resort. DP departments are setting up software purchase organizations, and that will be a major growth factor in the industry," he forecast.

Broken down by segments, processing services during 1980 took an $8.8 billion share of the $14.9 billion industry revenue, a 17% growth rate; software products captured $2.6 billion, growing at 31%; while professional services companies took $3.5 billion of the market, growing at 27%. Total revenue growth for the industry averaged 21%, Input found (see chart).

That revenue will continue to grow at a steady 20% rate through 1985 when total industry revenue will hit the $35 billion mark, the survey forecast.

The 56 publicly held firms analyzed in the annual study represented total revenues of $3.2 billion, growing at 27%, significantly higher than the industry as a whole.

For the first time this year's survey included software revenues from hardware manufacturers, which contributed $1.2 billion in revenue to the industry total.

Input estimated there are 4,350 U.S. companies in the software and services market, employing 318,000 individuals. Only 100 of these companies have revenues in excess of $10 million annually.

### Current Growth

For the current year industry growth will be spurred by continued proliferation of dispersed processing, lower cost computers fueling demand for software and improved mass marketing techniques by vendors.

On the negative side, the industry could be influenced by a continued tight economy, inflation, competition from public accounting firms and banks and by a lack of skilled personnel.


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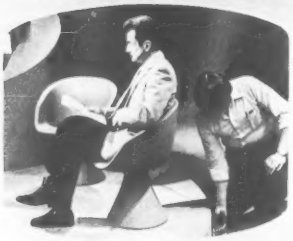

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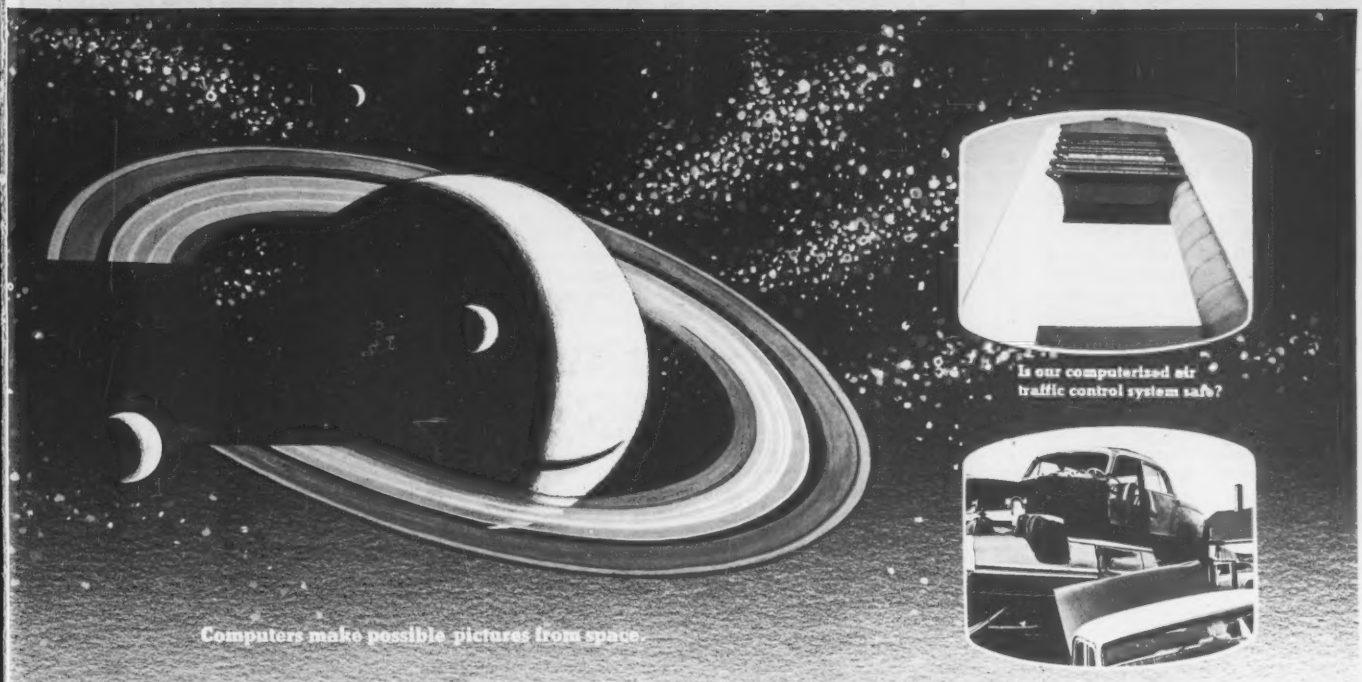
Since April, we've been reporting through the medium of television. Our weekly, half-hour TV newsmagazine, "Computerworld", has covered computers at work in airplane traffic control, learning for deaf children, weather forecasting, environmental control, retailing, automated factories, supreme court decision forecasting, and even a junkyard in the South Bronx — to name just a few of the places our cameras have gone.

And that's just the beginning. Each week "Computerworld" lets you take a step back from the trees to look at the forest. It lets you see, hear and experience the effect of computers on medicine, sports, law, business, crime, personal privacy, personal growth and much more. We cover failures as well as successes; problems as well as progress.

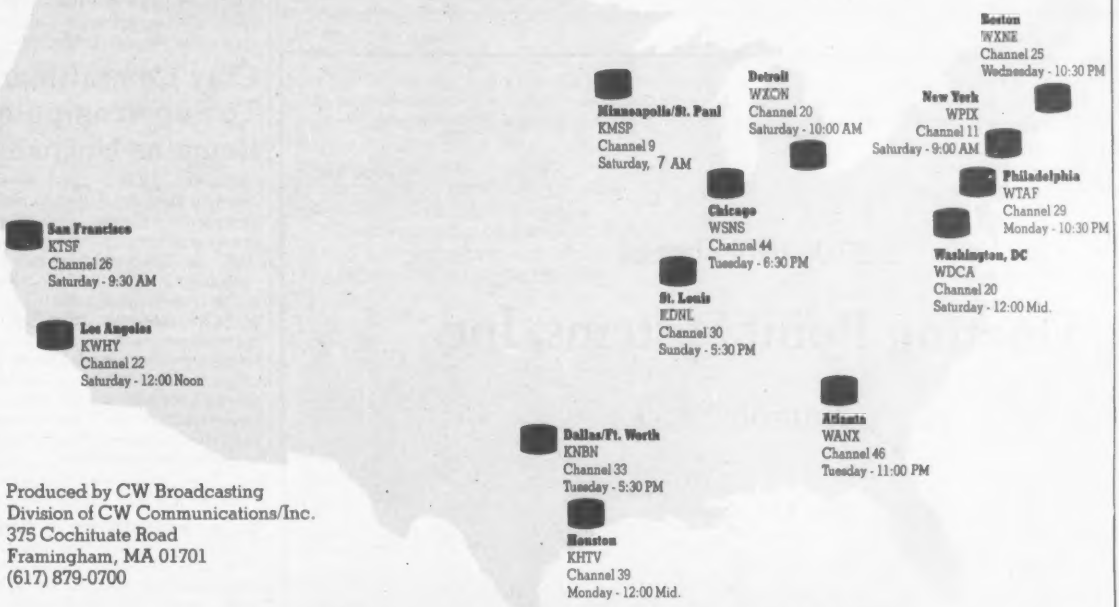
Computerworld for television also provides perspective on the continuing rapid technological changes in computers. Where is technology today? Where might it be tomorrow? What significant new products are becoming available? How is the industry changing and what is the impact of that change?

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There's much more to "Computerworld" for television, but we can't go into it all. We invite you to find out for yourself. Join the experts and interested laymen who are enjoying and benefiting from this unique new television experience. Right now, we cover 13 major tv "ADI's" (Areas of Dominant Influence), which include about half the computer people in the U.S., and we have plans for expansion in the fall.




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# Xerox Computer Services Leaning to Software

By Bob Johnson
CW New York Bureau

NEW YORK — "Good comprehensive software and the people who create it." That's what Haig M. Bazoian, president of Xerox Computer Services, Inc. (XCS), credits for his company's 30% increase in annual revenues over the last few years.

Stating that the company, established in 1970, is changing from its original time-sharing services business, Bazoian said at a recent meeting here that XCS will be concentrating on its software production.

He added that in the manufacturing marketplace, which is XCS' primary stronghold, one-third of the businesses consider computer services a solution to a problem. A solution will be emphasized by XCS, he noted.

### Software Services

XCS, which claims more than 1,000 customers worldwide, offers on-line data processing, software packages, network services, professional services, distributed computing and turnkey systems. It has also recently acquired Praxa Corp., which is developing the software for its turnkey systems.

Bazoian noted XCS services three major kinds of organizations: manufacturing, distribution and public service. He said that he wants companies to use XCS software and data bases as utilities. "Everyone in manufacturing is concerned with productivity today. Our systems are aimed at labor productivity and market costs," he added.

XCS noted that it offers its software to users in three different ways: through its 30 on-line computers (IBM and Amdahl Corp.) in four data centers in Southern California, by licensing software directly to end users and through turnkey systems.

On-line services can be accomplished by leasing terminals from Xerox that will transmit data to one of its data centers or by leasing an intelligent terminal and printer to perform on-site computing, Bazoian noted.

The licensing of IBM-compatible software to end users is a major step for XCS, according to Bazoian. This type of strategy fits in well with the company's plan to offer better software for its customers, he said.

Software packages such as Manufacturing Requirements Planning that optimize inventory scheduling and production are the "hot items," according to Bazoian. He added that XCS also recently announced factory data collection devices that collect information directly from a plant's floor and then compute it at a central location to further monitor and maximize efficiency.

Bazoian also noted that the integrated software developed for XCS' Digital Equipment Corp.-based turnkey systems is unique because it runs on both the PDP and VAX minicomputers.

XCS spends more than $4 million annually on programming development and maintenance and offers applications that range from financial control and personnel information software to public safety and parking citations. Bazoian said XCS will continue to develop its software, especially in the financial modeling and forecasting areas. He stressed that the company is building data base management systems to facilitate customized reporting, inquiries and subsystems.

When asked what justifies the use of XCS computer services by a large business that could conceivably have its own data center, Bazoian gave three reasons. First, he said, XCS can offer quick implementation of software, a chore many businesses do not want to deal with and are not equipped to handle. Second is on-line services, or the ability to network over large distances. Third is the expertise XCS can offer through its professional consulting service. He added that in some industries such as manufacturing, corporations are concerned chiefly with production and not as concerned with the handling of information.

XCS wants to offer a complete and thorough set of solutions to the computer problems in the industries it services, Bazoian concluded.

## Nickels & Dimes

### Pansophic Planning First Public Offering

OAK BROOK, Ill. — **Pansophic Systems, Inc.** plans an initial public offering of 1,165,000 common shares of stock this month.

The proposed sale was registered with the Securities and Exchange Commission on June 19, according to Dave Eskra, president of Pansophic.

The price is expected to range from $16 to $19 per share and the company will offer 650,000 shares. The balance reportedly will be offered by certain holders.

### Other Moves

**Insurance Systems of America, Inc. (ISA)** stockholders have contributed $7.4 million in equity capital to the closely held corporation based on the recommendations of ISA's management and executive committee to pay off all short-term debt and to provide working capital for the next 18 to 24 months.

$$$

**IBM Credit Corp.**, a wholly owned subsidiary of IBM, has filed registration statements with the Securities and Exchange Commission covering proposed public offerings of $100 million of par notes due in 1986 and $150 million principal amount of zero coupon notes due in 1988.

*This announcement constitutes neither an offer to sell nor a solicitation of an offer to buy these securities. The offering is made only by the Prospectus, copies of which may be obtained in any State from such of the undersigned and others as may lawfully offer these securities in such State.*

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## Cray Commitment To Supercomputer Remains Unchanged

MINNEAPOLIS — Cray Research, Inc. will stay committed to building large-scale scientific processors for use by government and industry, the firm's chairman said here recently.

Seymour R. Cray told stockholders at the firm's annual meeting that he plans to withdraw from the daily management of the firm and concentrate on product development.

Current research is expected to yield a processor several times more powerful than the Cray-1, a supercomputer designed for large scientific applications, he added.

## Service to Assist U.S. Firms in Europe

SAN FRANCISCO — An international marketing service designed to assist small U.S. high-technology manufacturing companies and OEMs in expanding sales in Europe is being offered by Consultech Marketing International, a new company.

Consultech regularly informs clients of the actual end market for products, provides feedback on distribution performance and European market developments and closes the gap that exists between the manufacturer and the foreign end user.

Further information on the service is available from Consultech Marketing International, 762 Knoll Drive, San Carlos, Calif. 94070.

# MSA to Acquire Peachtree Stock

ATLANTA — The board of directors of Management Science America, Inc. (MSA) has signed an agreement in principle to acquire all outstanding stock of Peachtree Software, Inc.

Peachtree will operate as a subsidiary of MSA, providing financial applications software to microcomputer users, the company said.

Peachtree has a line of nine financial application packages for microcomputers. MSA markets and maintains a line of nine financial application packages for medium- and large-scale computer users.

## Executive Corner

• Tano Corp. has announced the promotion of Walter J. Berger Jr. to vice-president of finance and business operations and Michael A. Cushman to vice-president of program management.

• Denelcor, Inc. has announced the additions to its staff of James A. Hill as executive vice-president; James E. Rottsolk, vice-president of finance and corporate development; and Richard A. Adams as vice-president of operations.

• Ronald J. Carlini has been appointed vice-president of product planning at Telex Computer Products, Inc.

• Beehive International Co. has announced the appointment of John McPhail as vice-president of marketing and sales; William Lees, vice-president and controller; and Joseph Carbone, vice-president of manufacturing.

• William F. Palmer will join Codex Corp. as vice-president of finance.

• Dorothy Frey has been elected vice-president of finance at Remote Computing Corp.

• Dennis Moser has been named vice-president and regional manager for the Sorbus Service division of Management Assistance, Inc.

• Charles Boyles has joined Aydin Corp. as corporate vice-president in charge of marketing.

• Infotron Systems Corp. has elected Joseph L. O'Neill vice-president of engineering.

• Modular Computer Systems, Inc. has appointed Gordon Woolley to the position of vice-president and director of operations.

• Larry V. Moore has been named to the newly created position of executive vice-president and director of marketing at Software Resources, Inc.

## Supershorts

Data General Corp.'s Information Systems Division and Cincom Systems, Inc. have announced intentions to make Cincom's Total data base management system available for DG's commercial Eclipse system operating under the Advanced Operating System.

— — —

The Marketing Management Group has been formed to assist manufacturers of micrographic-related equipment introduce products to the marketplace.

— — —

McGraw-Hill has combined two of its training divisions, Eductronics/McGraw-Hill and Tratec/McGraw-Hill, into a single group called McGraw-Hill International Training Systems to serve the international market for industrial training and development programs.

— — —

Continental Graphics Development will be changing its name to Cascade Graphics Development (GGD) to avoid confusion with another reprographics company with a similar name. The new name coincides with GGD's move to larger offices located at 1000 S. Grand Ave., Santa Ana, Calif. 92705 and is due partly to expansion of its computer-aided design service bureau to a 24-hour operation.

— — —

Structural Dynamics Research Corp. has announced a newly formed subsidiary, CAE International, which will promote computer-aided engineering.

— — —

Camwil, Inc., a manufacturer of custom printwheels and typeheads, has announced a new joint venture with ABA International, a systems consulting firm. The emerging company will be known as Camwil International, Inc. It plans to manufacture and distribute standard printwheels for the word processing market.

— — —

The Customer Engineering organization of Wang Laboratories, Inc. has opened six national Call Control Centers at its area district offices in New York, Boston, Atlanta, Chicago, St. Louis and Los Angeles.


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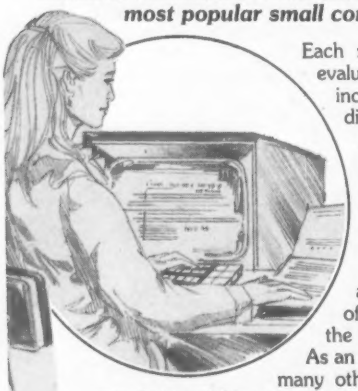
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ACU HAS THE FACTS


# Contracts & Pacts

**Sperry Univac has received a $102.6 million award to supply 11 Sperry Univac 1100/82 large-scale computers, with related equipment and software, to the U.S. Internal Revenue Service.**

Ontel Corp., a subsidiary of Caesars World, Inc., has signed an order valued at approximately $4 million from Lockheed Eiectronics Company, Inc. for the new Ontel OP-1/15 display terminal.

**Data General Corp.'s Information Systems division and Cincom Systems, Inc. have announced intentions to make Cincom's Total data base management system software available for use on Data General's commercial Eclipse systems operating under the Advanced Operating System.**

Callan Data Systems, Inc. has signed an OEM agreement with Micro Technology, Inc. for the joint development of 500 minifloppy controllers that will be incorporated into Callan's CD100 integrated workstation.

**Raytheon Data Systems Co. has announced a major multiunit order for a full range of PTS/1200 systems from Programs and Analysis, Inc.**

Nabu Manufacturing Corp. has announced a coventure with Communications Technology Management, Inc. for the design and development of integrated communications processing centers that will distribute interactive data and video signals between regionally clustered coaxial cable systems.

**Sentinel Computer Corp. has signed a major contract to acquire medical software from Medso, Inc.**

Beehive International Co. has appointed Schweber Electronics as its first authorized national industrial distributor of video display terminal lines, including the Micro 4400, DM3270 and the new DM5 product family.

**Data Electronics, Inc. has announced an initial order from Vydec, a division of Exxon Office Systems Co., for digital cartridge tape drives to be used with the Winchester disk backup in its new Netword system.**

Digital Equipment Corp.'s Microcomputer Products Group has announced the appointment of the Wyle Distribution Group as a new distributor for its microcomputer products and associated equipment.

**Systems Plus, Inc., a software marketing firm, recently signed a distribution contract with Xerox Corp. for Accounting Plus, a fully integrated accounting package for the CP/M operating system, and Accounting Plus II for the Apple computer system. Terms of the agreement call for shipment of a combination of software products to Xerox starting in August.**

Diablo Systems, Inc. has signed a three-year contract valued at $24 million to supply the Hewlett-Packard Co. with Model 630 daisywheel printers to be used across a wide range of HP systems products.

**Digital Datacom, Inc. has signed an agreement with Automated Quill, Inc. to market that company's computer software packages.**

Priam Corp. has signed a contract valued at more than $3 million with BTI Computer Systems, Inc. for 27- and 54M-byte formatted-capacity Winchester disk drives to be used with BTI Model 5000 interactive computer systems.

**Tandon Corp. has announced franchise agreements with Hall-Mark Electronics and Kierulff Electronics, Inc. Tandon will continue to market its products to large OEMs while Kierulff and Hall-Mark will cover the system houses, dealers, small OEMs, large end users and start-up operations.**

Westinghouse Electric Co. has purchased a comprehensive analytical computer software system from Management Decision Systems, Inc. to manage its central financial reporting and analysis activities.

**Burroughs Office Systems Group has signed a multiyear contract with a potential value of more than $30 million with Fujitsu Ltd. of Tokyo to market Fujitsu's new 35-sec analog facsimile unit.**

Recognition Equipment, Inc. has received an order from International Business Machines for the purchase of approximately $1.3 million in OCRs.

**The Sun Co. has purchased the Corporate Financial System, a computerized financial management package, from American Management Systems, Inc.**

Formation, Inc. has signed a two-year agreement valued at $2 million with Dataproducts Corp. to purchase the company's B-300 and B-600 band printers.

**Apple Canada, Inc. and Norpak Ltd. have entered into an agreement by which Norpak will design and manufacture a Telidon interface card for Apple II and Apple III personal computers.**

American Satellite Co. was awarded five government satellite system contracts during the past two months for a total contract value of more than $4.5 million. The contracts consist of a 56K bit/sec data link between the Air National Guard Base at Buckley, Colo., and the Sunnyvale Air Force Station in California, the establishment of a simplex 550K bit/sec link from Midway Island via the Westar II satellite to Ford Island, Hawaii, and the addition of a 230K bit/sec command and control link from Offutt Air Force Base to Fairchild and Loring Air Force bases.

**Commodore Business Machines has ordered additional 5¼-in. floppy disk drives valued at more than $7 million from Micropolis Corp.**

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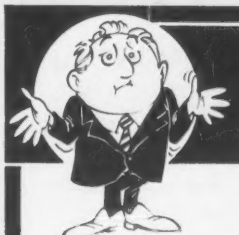
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Applications should be received on or before July 13, 1981. Apply stating qualifications, training and experience to:

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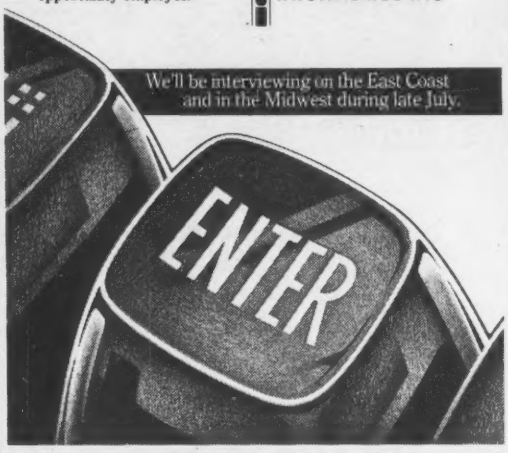
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Capital Holding Corporation, the holding company for several dynamically growing insurance organizations, is expanding its EDP audit function. We have outstanding opportunities for an **EDP Audit Manager** and **Sr. EDP Auditors.**

The **Manager** will be responsible for establishing departmental objectives directing the EDP audit staff in installation and application reviews, systems development audits and the development of audit software. Candidates should have 6 + years EDP audit experience, including audit experience with a significant systems development project, and the ability to successfully manage a group of professionals.

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We offer excellent compensation and benefit programs, including relocation to Louisville. For immediate consideration, send your resume in confidence to:

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Companies provide challenge, opportunity for advancement, and State-of-the-Art installations. Need the following career specialties: Project Manager(s), Project Leader(s), Systems Analyst(s), Programmer/Analyst(s), System Programmer(s), Programmer(s).

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**IMS SYSTEMS PROGRAMMER, $40,000.** Four weeks vacation first year. Several clients seek exp'd IMS internals pros. Must have at least two years industrial exp & knowledge of BTAM, VTAM or other access methods. Refer MF.

**DIV. MGR. to $40,000.** Southeastern financial organization seeks progressive mfr to become key member of mgmt team. Refer LS.

**MGR. SCIENTIFIC SYSTEMS to $38,000.** Major corp/research marketing group direct scientific solutions to complex business problems/ Tech staff. O.R./quantitative approach. Report V.P. Research. Advanced degree, Ohio metro. Refer AT.

**SYSTEMS ANALYST to $33,000.** Req's heavy design & implementation of inventory control & mfg systems, distributed processing & 8100 exp req'd. Refer LS.

**D.B.A., $33,000.** Petro corp needs exp w/DB internals, IMS & CICS. Large 3033 enviroment. High visibility. Refer RJ.

**SYSTEM ANALYST to $32,000.** Needed to work out Corp Data Processing objectives. 4341 – CMS/VM, OS, JCL. COBOL MARK IV. This is a career & growth position. Ohio metro area. Refer AT.

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**PROGRAMMERS to $27,000.** Offers excellent growth & responsibilities for programmers w/min 2 yrs solid programming exp. DOS/VS; OS/MVS; CICS/IMS. Good Southeastern location. Refer LS.

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**PROG./ANALYST, $26,000.** "Fortune" company needs sharp person to do heavy systems development. Currently using 370/148 OS/VSI, COBOL. Refer RJ.

**PROGRAMMER ANALYST to $26,000.** Major U.S. Corp in scenic Virginia seeks strong COBOL programmers w/IMS bkgd. PL-1, CICS a plus. Refer DM.

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**BALTIMORE, MD 21204**--C. Newman, 409 Washington Ave., 301/296-4500
**CHARLOTTE, NC 28202**--L. Stone, 1742 Southern Nat'l Center, 704/375-0600
**CLEVELAND, OH 44131**--A Thomas, 4401 Rockside Road, 216/524-6565
**COLUMBUS, OH 43229**--R. Spang, 6600 Busch Boulevard, 614/436-6400
**FLORHAM PARK, NJ 07932**--M. Feiger, 248 Columbia Turnpike, 201/966-1571
**HOUSTON, TX 77096**--G. Smith, 3000 Richmond Ave., 713/523-5586
**LOS ANGELES, CA 90017**-- A. Jackson, 707 Wilshire Boulevard, 213/623-3001
**McLEAN, VA 22102**--D. Miller, 1710 Goodridge Drive, 703/790-1335
**NEW YORK, NY 10036**--J. Dean, 1211 Ave. of the Americas, 212/840-6930
**PITTSBURGH, PA 15222**--B. Sayers, 4 Gateway Center, 412/232-0410
**PRINCETON, NJ 08540**--J. Dean, Route #1, CN 6100, 609/452-8135
**RALEIGH, NC 27625**--S. Hubbeling, 3101 Poplerwood Court, 919/872-2940
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Applicants must submit an SF-171, Personal Qualifications Statement to:

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**Military Sealift Command**
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The person we seek must have a minimum of a Masters Degree in Electrical Engineering. In addition, this person must have a good working knowledge of the following: Real time software in multiprocessor environments; peripherals and bit slice computer architecture; Mathematical methods for non-linear optimization; network protocols--HDLC/SDLC and IEEE 488; INTEL microprocesors; PDP 11/34; VAX 11/780; IBM 370; LSI 11. This candidate must also have in-depth knowledge of VAX VMS and RSX 11 operating systems and development systems INTEL MDS/ICE 86. This individual must also have skillful use of Assembler 8086, PLM 86, MACRO 11, PASCAL, FORTRAN and ALGOL.

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Int'l banking-Arbat aims ..... $35M
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Send resume including salary history to:

INTERTEC DATA SYSTEMS.

**INTERTEC DATA SYSTEMS**
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# Systems Programmers

We seek experienced systems programming staff, or individuals with an interest in systems programming as a career path, having a background in DEC and IBM computers. Experience in VAX/VMS, UNIX, RSX/11M, OS/VS and/or VM/CMS would be a definite plus. People selected will be responsible for the development and support of an environment consisting of a mainframe computer with attached mini and micro computer systems. We offer an opportunity for professional growth, a chance to work with a state-of-the-art organization, and a highly competitive compensation package. Send your resume and salary requirements to:

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**Qualifications:**
Advanced degree is required. Competitive candidate must have deep understanding of academic computing. Ideas, enthusiasm, and the ability to work closely with faculty are essential. Technical computing expertise and management experience are essential.

**Experience:**
Preferably two or more years of academic experience. Knowledge of interactive computing utilizing a timesharing system (IBM CMS helpful). Demonstrated management experience within academic computing is desired.

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This is a 12-month position. Salary range is $25,000-$28,000 dependent upon experience and qualifications. Position available September 1, 1981. Application deadline August 10, 1981. To apply please send resumes to: **Larry Buell, Director of Computer Services, Haning Hall, Athens, Ohio ~5701.**

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## Senior Systems Programmers

Openings for experienced professionals with 2 plus years experience in MVS/ST, JES2 with emphasis in one of these 3 areas: Operating Systems Specialist, IMS/VS; DC Specialist, (VTAM required), ACF/VTAM, NCP; Communications Specialist.

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Programmers

# Systems Programmer

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### Applications Programmer/Analysts

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LARGE, MODERN, TECHNICALLY SOPHISTICATED CLIENTS located in the SUNSHINE STATE have requirements for ABOVE AVERAGE, GROWTH ORIENTED PROGRAMMER ANALYSTS, SYSTEMS ANALYSTS, DATA BASE SPECIALISTS and SYSTEMS PROGRAMMERS who have experience in ANY of the following AREAS: IBM, CICS, IMS, COBOL or ASSEMBLY LANGUAGE. If you consider yourself ABOVE AVERAGE submit RESUME including SALARY HISTORY or CALL (to 8 PM EST):

RICHARD MADDOCK AND ASSOCIATES, INC. Phone (813) 996-6102
PERSONNEL CONSULTANTS P.O. BOX 271431, TAMPA, FL 33688

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Program yourself for a truly rewarding career. Team up with COMPDATA—the Software Division of CDI CORPORATION, a $225 million ASE-listed, international firm.

We are actively seeking to add to our staff talented professionals with demonstrated programming or analysis skills in any of the following areas:

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The salary level for these positions are up to $34,000 per year depending upon experience. Our staff members, in addition to enjoying an excellent starting salary, participate in a very attractive bonus-incentive plan. There are frequent reviews based upon performance and a liberal benefits package that includes pension-profit sharing plan.

To arrange for an immediate interview appointment, please call COLLECT 617-444-8350 or forward resume in confidence to Mr. Wayne Robison.

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161 Highland Avenue
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At present, openings exist in major cities throughout the U.S.

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# Computer Sciences Corporation

## Assignments in Frankfurt, Germany

CSC, the world's largest independent software firm and a leader in the information sciences, offers a broad spectrum of positions open for 2-year assignment in Frankfurt, West Germany. **Fluency in German** is essential, and previous railroad or transportation experience would be helpful. We offer strong rewards including paid relocation for:

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- **SYSTEM DEVELOPMENT**
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. . . to work on an Integrated Test System for German railways, developing an effective system for total tracking of freight/transport data, accounting data, scheduling of trains, delays and alternate routing.

These assignments require 5-12 years experience in planning, development, budgeting, and supervision of large-scale EDP projects from conception; PL/1 and Assembler languages required.

For prompt professional consideration, please send resume with salary history to: **Craig Bucy, Corporate Manager, International, or phone (213) 615-0311, ext. 2312 or TOLL FREE 1-800-421-2086, ext. 2312.**

**The only limitations are the ones you bring with you.**

CSC
650 N. Sepulveda Boulevard
El Segundo, CA 90245

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# INFORMATION PROCESSING CONSULTANT

Our firm is searching for a technically competent person who is currently employed in EDP consulting to join our practice as a Senior or Principal.

Requirements include excellent undergraduate and preferably graduate education, significant success in a large data processing environment, preferably line or staff experience prior to entering consulting, excellent communication skills, and expertise in the areas of feasibility analysis, project management, office automation, manufacturing systems, or managing the data processing resource.

Our Indianapolis-based professional services firm provides counsel and technical assistance to management on information processing issues. We are independent of all hardware and software vendors and do not engage in software implementation projects. We offer a "law office" environment, minimal travel, and excellent compensation plan, and an outstanding opportunity for personal achievement. The confidential nature of your inquiry will be protected by writing directly to:

**ALAN C. STANFORD**
**PRESIDENT**

**DATA SCIENCES, INC.**

**125 W. Market Street**
**Indianapolis, Indiana 46204**

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## Director of Computer Services
### Medical Sciences Campus

Responsibilities include the development of goals, budget, and policies for administrative and academic systems, and the direction of a staff of 40 employees in systems development, technical support and computer operations. On-line environment includes a DEC System-10 and an IBM 4341 using VM/370, OS/VSI, and CICS.

Requirements include a BA or BS degree and a minimum of 5 years of computing administration experience. Preference will be given to applicants with administrative computing experience in medical or academic environments. Salary commensurate with education and experience.

Please send applications by July 20th, 1981 to:

**Mr. Ray Bisson**
**Director of Personnel**
**University of Arkansas for Medical Sciences**
**4301 West Markham**
**Little Rock, AK 72205**

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# Programmer

Increasing demand, in an expanded marketplace, for the products of the Analytical Systems Division of Bausch & Lomb, has generated a newly created position for an individual experienced in software design and programming.

This position will provide the opportunity for the qualified person to develop software for one of our major product lines. Emphasis will be for specific applications software for designated product markets. Activities will include software design, flowcharting, programming, debugging, and testing.

Qualifications include a degree in computer or physical science and 2-3 years industrial experience in producing crash-proof software. Data General DOS and RDOS experience preferred. FORTRAN and BASIC language essential.

We offer a salary based on experience, a competitive benefits package and relocation assistance. For immediate consideration, send resume including salary progression, in confidence to:

**James A. Hopkins**
**Human Resources Manager**

ANALYTICAL SYSTEMS DIVISION
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In this highly visible and responsible position you will manage project teams of senior professionals in the development of systems projects in finance, operations and business applications. Bachelor's degree and eight years experience in business applications, with demonstrated skills in project management and control of large IBM systems required. Masters degree and experience in the oil and gas industry a plus.

## SENIOR SYSTEMS ANALYST

Provides the opportunity for independent performance and creative contributions in the analysis, design, development and implementation of computer systems to resolve business applications problems. Bachelor's degree and 4 years experience in business systems. Systems design capabilities and technical proficiency in the usage of IBM hardware, COBOL, CICS, and TSO. Advanced degree and experience in the oil and gas industry a plus.

## SYSTEMS ANALYST

Will work with other professionals employing state-of-the-art techniques in analyzing, programming, testing and installing computer programs. Also develops or converts program specifications into computer program source statements or tests completed programs. Bachelor's degree and 2 years experience programming large scale IBM systems, including JCL, COBOL, CICS, and TSO. Data base experience a plus.

**Similar positions available at our Corporate headquarters in Houston.**

**These are exceptional career opportunities with one of the most prestigious companies in the field of natural gas. Solid growth opportunity, job stability, salary commensurate with experience and complete company paid benefits package, with separate dental plan available.**

**For immediate consideration, please send your detailed resume including salary requirements in absolute confidence to COLORADO INTERSTATE GAS COMPANY, Employment Section 20A, P.O. Box 1087, Colorado Springs, CO 80944. We are an equal opportunity employer m/f/h/v.**

**Colorado Interstate Gas Company**
*A Subsidiary of The Coastal Corporation*

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## Senior Member--Technical Staff

A Research and Development Division of a major U.S. Corporation has an immediate opening in its Telephonic Device Maintenance Software group for a candidate to help develop an advanced public digital switching system--a pioneering project that will bring involvement with the latest technology.

The job consists of working in a large local digital public telephone exchange project. The position entails specification and design of software using CHILL language for 32 channel digital trunk testing to meet European requirements. The job also involves use of ISM software development tools, executable load modules targeted for an INTEL 8086 16 bit processor. Extensive use is made of INTEL 8086 hardware and software development products, including ICE 86 in order to download between the IBM mainframe and the INTEL development system, to run, debug and patch CHILL code at the machine language level.

The person we seek must have a minimum of a Masters degree in Electrical Engineering as well as at least 5 years experience in public exchange development. In addition the person must have a good working knowledge of the following: 32 channel digital trunk design for use in a digital public exchange. The candidate must have in-depth knowledge of CHILL and 8086 assembly languages together with software development tools and INTEL software development products.

Salary--$34,000

Send your resume to Ansonia Job Service, 555 Main Street, Ansonia, CT 06401. Refer to Job Order #0186158.

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## SYSTEMS ANALYST

Progressive Pulp and Paper Manufacturer in Virginia is seeking an individual with a B.S. Degree plus a minimum of 3-5 years experience in Programming and Systems. Experience in the areas of Manufacturing, Distributed Processing, On-Line Applications, and COBOL--considered a plus.

This position offers a challenge with excellent benefits and salary. Send resume, including education, work experience and salary requirement, in confidence to:

**PERSONNEL MANAGER**
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**WEST POINT, VA 23181**

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Bowman Associates takes a totally professional approach to meeting your needs. You are assured of total confidentiality and control over resume distribution. For immediate consideration, please send resume and salary history to: Gil Biggs, Bowman Associates, Suite 725, 595 Market St., San Francisco, CA 94105, or call **Collect** at (415) 781-0717. All fees employer-paid.

**Bowman Associates Inc.**

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## TANDEM MINI NETWORKING

**San Francisco Bay Area**

Our client, a very large, profitable organization needs data processing professionals with the following qualifications:

- 2-4 years exp. as Programmer/Analyst in networking applications.
- COBOL
- Good communication skills
- Motivated by advancement opportunity in a dynamic, well-managed, large organization.

We are consultants to management. Please send resume including salary history to **Cissy VanBalen,**

**Professionals for Computing, Inc. (Search & Personnel Services), One Maritime Plaza, Suite 1350, San Francisco, CA 94111.**

**(415) 956-7120.**

Employer pays fee.

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## DATA SYSTEMS PROGRAMMER ANALYST

GARDINIER, Inc., a large agricultural chemical manufacturing firm in the Tampa, Florida Bay area, has an opening in its Data Processing Department for a Computer Systems Programmer Analyst.

The position involves designing Computer Systems to collect and analyze financial, accounting and manufacturing information.

A qualified candidate will possess a Bachelor's degree in Computer Science, Accounting or Finance with 3 to 5 years working experience, a thorough knowledge of COBAL, FORTRAN and RPG languages, and "point of sale" exposure.

The position offers an excellent salary, a complete benefit package and opportunities for advancement. Please call or send resume and salary history in confidence to:

**Supervisor of Labor Relations**
**GARDINIER, INC.**
**P. O. BOX 3269 • TAMPA, FL 33601**
**PH. (813) 677-9111**
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**MONROE, LA. 71201**

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## SALES OPPORTUNITY

Dynamic young company with continual rapid growth needs aggressive, experienced person who can sell at top management level. Position requires strong track record of achievements and some knowledge of data processing. Knowledge of computer based financial systems for banks or credit unions desirable. Sell financial computer services and turnkey systems in strategic geographic territories nationwide. This position provides outstanding earning potential with base salary, commission and many fringe benefits. Excellent career path possibilities. **Send resume and earning history to Mr. John L. LeRoy, Vice-President, Marketing, SUMMIT Information Systems Corporation, 150A NW Lewisburg Road, Corvallis, Oregon 97330.**

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## UNIVERSITY OF VERMONT COMMUNICATIONS MANAGER

The University of Vermont is in need of a communications manager to design, implement and oversee new PBX telecommunications system and technological improvements of mail service. The preferred applicant will have a Bachelor's Degree with a major in electrical engineering, computer science or a related field, or extensive background in implementing and designing PBX telecommunications systems or an equivalent combination of education and experience. Salary range $15,929 - $20,708. Send resume and names of references to **Personnel Office, 237 Waterman Building, University of Vermont, Burlington, Vermont 05405 by July 15, 1981.**

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# Sr. Systems Engineer

## Challenge Your Know-How In Network Analysis & Planning

**If you're an Engineer with prior experience in network analysis and planning, Arizona Public Service Company has the opportunity for you. We're looking for a Senior Systems Engineer in the area of Computer Networking for our rapidly-expanding corporate data system. This position offers applicants the opportunity for exceptional challenge and growth in a stimulating environment.**

**Excellence in communication skills is required. Experience with SNA and communications protocols is highly desirable.**

**The APS data processing facilities include an IBM 370, 1683 in a shared DASD configuration with an IBM 3031 operating under MVS-SPI. This facility provides Batch, TSO and IMS service over a state-wide data communications network. Major expansions are currently in the planning stage.**

**We offer an excellent salary and benefits package as well as the opportunity for career growth. Please send a detailed resume and salary history to: Marlene Shelton, CW76:**

aps.
ARIZONA PUBLIC SERVICE CO.
Station 1102
P.O. Box 21666
Phoenix, Arizona 85036
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# DP OPPORTUNITIES

We're continually expanding and upgrading our Information Systems & Services Department and its functions, and are looking for a broad range of D.P. Professionals who want to get involved in the development and implementation of our state-of-the-art systems. As the holding company of several dynamically growing insurance companies, our D.P. systems are vital to us and our users. Our current environment includes IBM 370/3033, OS/MVS, IBM 370/145, 370/158, DOS/VS, CICS, COBOL and ALC.

The candidates we need should have a thorough knowledge and several years experience in their particular discipline. Knowledge of the insurance industry is a definite asset. Our immediate openings include:

- CICS Systems Programmer
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- Sr. Planning Analyst
- Computer Operations Manager
- Systems Analysts
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Besides excellent career potential and rewards, we offer excellent salaries and liberal benefits, including relocation to Louisville, and a new in-house D.P. training program. For immediate consideration send your letter or resume in confidence to:

Kaghy Coin, Dept. CW 706
**CAPITAL HOLDING CORPORATION**
P.O. Box 32830
Louisville, KY 40232

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# MVS SYSTEMS HEAVIES

Tired of sysgens and boring work? Are you good enough to develop state-of-the-art performance software? Do you want to join the leading edge of IBM MVS SE/SP technology? If all this plus a top salaried, super environment interests you, reply in confidence to:

Director, Software Products Division

**APPLIED DATA RESEARCH, INC.**
Route 206 and Orchard Road, CN-8
Princeton, New Jersey 08540
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ADR

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# Apple Will Take You To The Core Of The Personal Computer Revolution

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### Product Marketing

With a BS or MS in Computer Science or Business (MBA desirable) and at least three years in product management/marketing in software systems development, you are one of the ideal people to coordinate and manage competitive marketing strategy for a range of software systems products.

- Working with a new family of products involves coordinating marketing, software development, publications and product review from initial proposal through production release.
- Apple Distribution involves working closely with outside software vendors to develop introduction plans and direct product roll-out, customer service and support.
- Competitive positioning, product introduction and product life cycle management for the entire range of Apple system software, graphics, and data base software. Requires BS/BA in Marketing, Management or Computer Science plus a solid knowledge of personal computer applications, operating systems or languages.
- Coordinate and implement Apple systems marketing and merchandising strategy. Closely monitor dealer and field sales needs for assimilation into service, training or product requirements. Requires at least three years in Marketing for a computer manufacturer with thorough knowledge of merchandising from development through product launch. BSEE/CS (MBA a plus).

You owe it to yourself to investigate Apple to the core. Send your resume to **Professional Staffing, Dept. CW-SJ, Apple Computer Inc., 10260 Bandley Drive, Cupertino, California 95014.**
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apple computer

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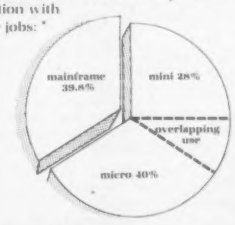
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Our Data Processing center in Northridge, a suburb of Los Angeles, has terrific job opportunities for people skilled in distributed systems development, telecommunications networks and 3033 MVS environments.

Our center operates a multi-CPU environment with ACF/VTAM, IMS DB/DC, MVS. Experience with savings and loan or banking systems is mandatory. As well as 3 to 5 years total experience in analysis and programming and a minimum 1 year experience in coding IBM 3600.

For more information and to arrange an interview, send a resume to:

Manager, Retail Systems Department
Great Western Savings
P.O. Box 1030, Northridge, CA 91328

Salary requirements and history must be included.

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GW

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## RPG II Programmer/Analyst

Immediate opportunity in the beautiful mountains of VA for an **experienced** RPG II Programmer/Analyst. Must have state-of-the-art programming skills, be mature and self-motivated, but capable of working with other professionals.

Qualified candidate should have **min. 10 + years RPG II programming** with systems analysis experience, **heavy System 34 on-line processing** a must, and a BS Degree in Business Administration, Computer Science, Pure Science, or Information Systems. Familiarity with IBM COBOL a definite plus.

Individual will work on convenient store retail marketing systems.

Salary commensurate with experience...$23,000 up. Excellent continuing education, medical and dental plan, and fringe benefit package.

For immediate and confidential attention please send resume to:

**Harry J. Johnson**
**Data Processing Manager**
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**PO Box 260**
**Roanoke, VA 24002**

## 370 Assembler/Systems Experts

SAS use around the world now exceeds one million executions per month. SAS Institute, one of the most rapidly growing systems software developers in the US, is looking for software professionals with a command of the System/370 instruction set and assembly language programming capabilities.

SAS Institute is committed to developing and maintaining the leading edge on technology in applications and systems software. In the highly professional working environment at SAS, the emphasis is on personal productivity and inventiveness. Each desk has one or more IBM 3278 or 3279 color terminals. We probably have your favorite operating system, subsystem, editor, or software package. You will also enjoy instant interactive response and batch turn-around.

SAS Institute offers excellent benefits, competitive salaries, and a prime location near the Research Triangle Park in the Raleigh-Durham-Chapel Hill area.

Currently, SAS is searching for systems software professionals with experience or interest in the following areas:

- IMS/VS installation, generation, maintenance, internals
- IMS/VS data base and network management
- MVS Subsystem Interface (SSI)
- MVS/SP2+ Cross Memory Services/Dual Address Space
- ACF/VTAM/NCP/NTO/MSNF, SNA-protocol communications and applications
- EXCP/Access Methods/DASD Channel Programming
- CICS installation, maintenance, internals; Shared DL/I
- JES2/3 Process Sysout (PSO)/TSO/XWTR/NJE interfaces
- DL/I DOS/VS(E) use and internals
- VM and CMS internals
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If you think your high-technology talents can meet the challenge at SAS, write or call Ms. Marti Dominick at the address below. All inquiries will be confidential. No agencies, please; direct applicants only.

SAS

Ms. Marti Dominick
SAS Institute Inc.
SAS Circle, Box 8000
Cary, NC 27511
(919) 467-8000

EOE/M/F

## DATA PROCESSING PROFESSIONALS

DATA RESOURCE CORPORATION, headquartered in Atlanta, is a leader in quality Contract Programming and Consulting. Our continued growth in the Southeast and Southwest has created opportunities for versatile Professionals with state-of-the-art skills in Programming and Systems Design.

We are currently seeking individuals with at least 3 years of diversified programming experience, strong technical backgrounds, and who possess the desire to work in various, stimulating Data Processing environments. IMS and CICS skills are of special interest, as are the abilities to travel or relocate.

We can offer you competitive salaries and comprehensive benefits programs, including bonuses and profit sharing. If you've been searching for a growth opportunity with a dynamic and progressive company with a Management team that "puts people first," then DRC is your answer.

For immediate consideration, please call BECKY FINLEY COLLECT at (404) 633-9387, or send your resume to:

DRC

**DATA RESOURCE CORPORATION**
**1849 Tullie Cir. N.E.**
**Suite 110**
**Atlanta, GA 30329**
*An EOE M/F*

# PROGRAMMER ANALYSTS

AirCal is expanding its Data Processing Department and is looking for experienced Programmer Analysts. Opportunities are available in the design, development and implementation of major systems as well as enhancements and maintenance of existing systems.

If you have 4-6 years of experience in an HP 3000 environment and are looking for a growing and exciting company, send your resume to:

**AIRCAL**

**P.O. Box Z, Newport Beach, CA 92660**

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**Systems Personnel, Inc.**
Suite C-200, 207 Fox Lane
Wallingford, PA 19086
215-565-2920

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MEMBER OF NATIONAL COMPUTER ASSOCIATES

LIFEMARK

## RPG PROGRAMMER ANALYST

LIFEMARK Corporation, a diversified health care management company experiencing rapid growth and expansion has an immediate opening for a RPG Programmer Analyst.

Qualifications

- 2-5 years experience in RPG II
- Experience on IBM System 34
- Self starter ability to interface with users
- Hospital experience or health care helpful

Duties

- Design, program, and implement hospital system on IBM System 34

LIFEMARK Corporation, a Houston based NYSE listed company, offers an excellent benefit package, salary commensurate with experience, stock purchase plan, and high visibility for career advancement.

For more information contact:

**Jane Rigelhaupt**
**LIFEMARK Corporation**
**P.O. Box 3448**
**Houston, Texas 77001**

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LIFEMARK Corporation

A classified section is known by the companies it keeps.

COMPUTERWORLD

## Academic Computer User Consultant Perdue University, Calumet

Perdue University, Calumet is seeking a qualified individual to plan, organize, direct and control an academic computer user support organization. Responsible directly to the vice-chancellor of academic affairs, the successful candidate will provide leadership in assisting the academic community and integrating computer concepts in the curriculum and research activities.

The successful applicant must possess a Masters Degree in Computer Technology, Computer Science or equivalent field. An earned doctorate preferred. Knowledge of Assembler, COBOL and Fortran languages and general computer technology is required. Knowledge of PASCAL and applications knowledge of statistics and/or engineering or engineering technology is preferred. Experience in classroom instruction and research related to computer topics is desired. A maximum of quarter time teaching is expected of the person in this position.

Salary and academic rank are open and commensurate with education and experience. Perdue University, Calumet, a branch of Perdue University is an urban computer campus located in the Chicago area of northwestern Indiana with an enrollment of over 7,000 students. It offers programs in associate, baccalaureate, and masters degree levels.

Applications will be accepted until the position is filled.

Send detailed vita preferably with salary history to:

**Dean L.S. Johnson, Chairperson, Search & Screen Committee, School of Science and Nursing, Perdue University, Calumet, Hammond, IN 46323**

The University is an Affirmative Action/Equal Opportunity Employer

# MIS PROFESSIONALS

- Lead Analysts
- Programmer Analysts
- Programmers
- Telecommunications Specialists
- Scientific Analysts & Programmers
- Hardware/Software Evaluation Analysts



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Sarah Steiner, Senior Executive Recruiter
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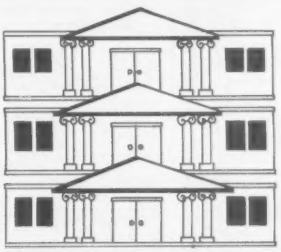
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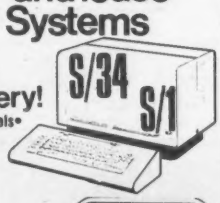
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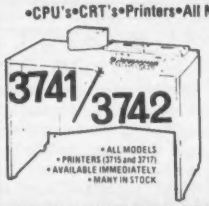
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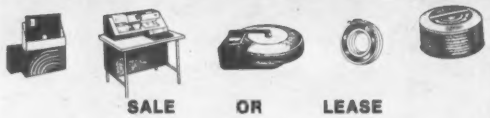
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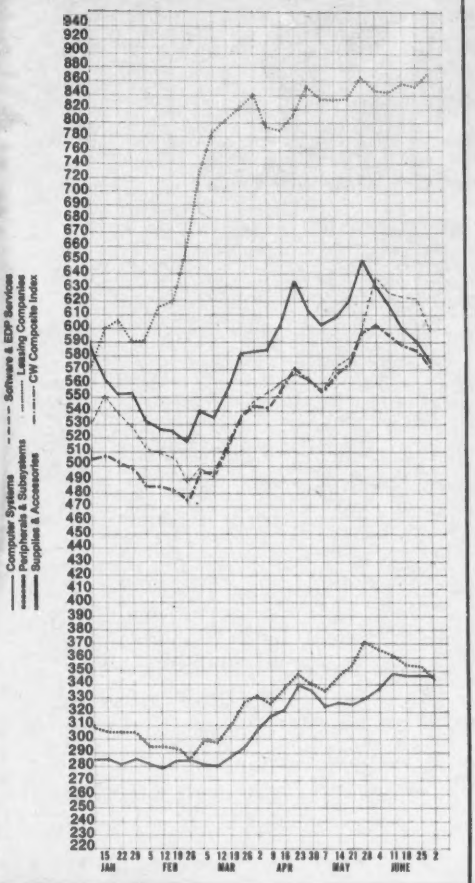
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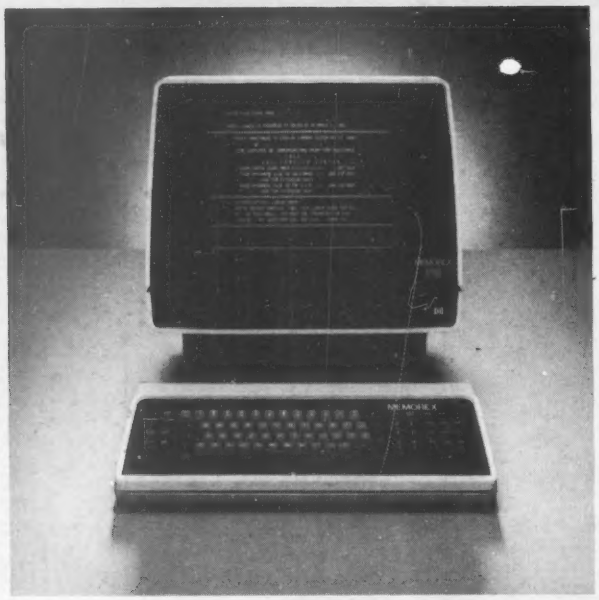
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| N | BURROUGHS CORP | 38- 88 | 39 3/8 | -1 1/4 | -3.0 |
| O | COMPUTER AUTOMATION | 8- 27 | 12 1/2 | - 1/2 | -3.8 |
| N | CONTROL DATA CORP | 35- 84 | 73 1/8 | -2 1/8 | -2.8 |
| O | CRAY RESEARCH INC | 10- 48 | 38 3/8 | -1 5/8 | -4.2 |
| N | DATA GENERAL CORP | 48- 87 | 65 1/4 | +2 1/8 | +4.0 |
| N | DATAPOINT CORP | 22- 88 | 57 1/2 | + 3/4 | +1.3 |
| N | DIGITAL EQUIPMENT | 52-113 | 98 3/4 | -2 5/8 | -2.5 |
| A | EECO INC | 6- 19 | 14 1/2 | - 1/2 | -3.3 |
| N | ELECTRONIC ASSOC. | 6- 12 | 7 1/2 | 0 | 0.0 |
| N | FOUR-PHASE SYSTEMS | 18- 48 | 38 3/8 | -2 1/4 | -5.4 |
| N | FOXBORO | 31- 62 | 51 1/4 | -1 7/8 | -3.5 |
| O | GENERAL AUTOMATION | 7- 19 | 12 7/8 | - 1/4 | -1.9 |
| O | GRI COMPUTER CORP | 1- 3 | 1 1/4 | 0 | 0.0 |
| N | HARRIS CORP | 25- 80 | 44 7/8 | - 3/4 | -1.6 |
| N | HEWLETT-PACKARD CO | 46-107 | 85 1/8 | -1 3/4 | -1.8 |
| N | HONEYWELL INC | 65-115 | 85 3/8 | + 7/8 | +1.0 |
| N | IBM | 50- 78 | 57 7/8 | -1 5/8 | -2.7 |
| O | MAGNUSON COMP SYSTS | 20- 48 | 28 1/2 | -3 1/4 | -10.2 |
| N | MANAGEMENT ASSIST | 8- 25 | 16 | -1 | -5.8 |
| O | MINI-COMPUTER SYST | 1- 6 | 2 5/8 | - 1/8 | -4.5 |
| N | MODULAR COMPUTER SYS | 8- 31 | 13 5/8 | 0 | 0.0 |
| N | MOHAWK DATA SCI | 10- 31 | 21 1/4 | - 3/8 | -1.7 |
| N | NCR | 52- 82 | 63 | 0 | 0.0 |
| N | PRIME COMPUTER INC | 10- 48 | 37 3/4 | - 3/4 | -1.9 |
| N | PERKIN-ELMER | 13- 35 | 28 7/8 | - 5/8 | -2.2 |
| N | SPERRY CORP | 42- 85 | 67 5/8 | - 7/8 | -1.8 |
| O | TANDEM COMPUTERS INC | 13-104 | 88 | -2 3/4 | -2.8 |
| N | TEXAS INSTRUMENTS | 78-150 | 97 | -2 | -2.0 |
| A | WANG LABS. | 17- 80 | 33 1/4 | + 3/8 | +1.1 |
| | **LEASING COMPANIES** | | | | |
| O | BOOTHE FINANCIAL CP | 13- 27 | 25 1/4 | 0 | 0.0 |
| N | COMDISCO INC | 8- 24 | 23 1/8 | + 1/8 | +0.5 |
| A | COMMERCE GROUP CORP | 1- 2 | 1 | 0 | 0.0 |
| A | COMPUTER INVSTRS GRP | 1- 4 | 3 | 5/8 | 0 | 0.0 |
| O | CONTINENTAL INFO SYS | 2- 15 | 7 3/4 | 0 | 0.0 |
| A | DCL INC | 3- 6 | 3 3/4 | + 1/8 | +3.4 |
| N | DPF INC | 3- 12 | 8 3/4 | + 1/8 | +1.2 |
| O | ITEL | 1- 15 | 7/8 | 0 | 0.0 |
| O | LEASPAC CORP | 1- 2 | 3/8 | 0 | 0.0 |
| A | PIONEER TEX CORP | 2- 4 | 3 1/8 | + 3/8 | +13.6 |
| N | RELIANCE GROUP INC | 24- 80 | 68 | +4 3/4 | +5.7 |
| N | U.S. LEASING | 12- 30 | 25 1/8 | 0 | 0.0 |

| EXCH | | 1980-81 RANGE (1) | CLOSE JUN 30 1981 | WEEK NET CHNGE | WEEK PCT CHNGE |
|---|---|---|---|---|---|
| | **SOFTWARE & EDP SERVICES** | | | | |
| O | ADVANCED COMP TECH | 1- 6 | 5 1/4 | - 1/2 | -8.6 |
| O | ADVANCED SYSTEMS INC | 12- 15 | 12 3/4 | 0 | 0.0 |
| O | ANACOMP INC | 8- 19 | 15 7/8 | - 3/8 | -2.3 |
| O | ANALYSTS INTL CORP | 3- 14 | 6 3/4 | - 1/2 | -6.8 |
| A | APPLIED DATA RES. | 8- 25 | 21 5/8 | -1 1/8 | -4.9 |
| N | AUTOMATIC DATA PROC | 15- 32 | 28 1/4 | - 1/2 | -1.7 |
| O | CGA COMPUTER ASSOC | 8- 17 | 10 3/4 | -1 1/2 | -12.2 |
| O | COMPUTER HORIZONS | 1- 5 | 2 7/8 | - 1/8 | -4.1 |
| O | COMPUTER NETWORK | 4- 8 | 5 | - 1/4 | -4.7 |
| N | COMPUTER SCIENCES | 11- 30 | 18 3/4 | -1 1/4 | -5.8 |
| O | COMPUTER TASK GROUP | 1- 23 | 20 3/4 | - 3/4 | -3.4 |
| O | COMPUTER USAGE | 2- 10 | 3 1/2 | - 1/4 | -8.8 |
| O | COMSHARE | 11- 21 | 11 1/2 | - 1/4 | -2.1 |
| O | CULLINANE DATABASE | 18- 69 | 33 | -2 1/2 | -4.3 |
| O | DATA DIMENSIONS INC | 1- 6 | 1 3/8 | 0 | 0.0 |
| O | DATATAB | 1- 4 | 3 1/4 | - 3/8 | -10.3 |
| O | DBI CORP | 4- 9 | 5 1/2 | - 3/8 | -6.3 |
| O | DYATRON CORP | 4- 11 | 9 3/4 | - 1/2 | -4.8 |
| N | ELECTRONIC DATA SYST | 18- 58 | 57 1/4 | +1 3/4 | +3.1 |
| O | INFORMATICS INC | 8- 33 | 24 3/4 | + 3/4 | +3.1 |
| O | INSYTE CORP | 1- 3 | 2 1/4 | - 1/2 | -18.1 |
| O | IPS COMPUTER MARKET. | 1- 4 | 1 1/2 | 0 | 0.0 |
| O | KEANE ASSOCIATES | 3- 9 | 7 1/2 | 0 | 0.0 |
| A | LOGICON | 12- 38 | 32 7/8 | + 1/4 | +0.7 |
| O | MNGT SCI AMER INC | 17- 28 | 20 1/4 | -2 | -8.8 |
| O | MATHEMATICA INC | 5- 19 | 16 3/4 | - 1/4 | -1.4 |
| O | MATHEMATICAL APP GRP | 7- 33 | 28 1/2 | -1 | -3.8 |
| O | NATIONAL DATA CORP | 5- 27 | 22 1/4 | -1 3/8 | -5.8 |
| N | PLANNING RESEARCH | 5- 13 | 7 7/8 | - 1/8 | -1.5 |
| O | PROGRAMMING & SY | 1- 2 | 1 1/2 | 0 | 0.0 |
| O | RAPIDATA INC | 4- 11 | 7 1/8 | - 1/2 | -6.5 |
| O | REYNOLDS & REYNOLD | 19- 34 | 22 1/2 | - 1/4 | -1.0 |
| O | STSC INC | 6- 28 | 20 3/4 | -1 | -4.5 |
| O | SCIENTIFIC COMPUTERS | 3- 17 | 8 | 0 | 0.0 |
| N | TYMSHARE INC | 17- 56 | 42 | -2 3/8 | -5.3 |
| A | URS CORP | 5- 17 | 14 1/8 | 0 | 0.0 |
| N | WYLY CORP | 4- 20 | 12 1/2 | - 7/8 | -6.5 |
| | **PERIPHERALS & SUBSYSTEMS** | | | | |
| N | AM INTERNATIONAL | 11- 24 | 13 1/4 | - 1/2 | -3.6 |
| A | ANDERSON JACOBSON | 8- 25 | 19 7/8 | -1 3/4 | -8.0 |
| O | AUTO-TROL TECHNOLOGY | 18- 62 | 18 3/4 | - 1/2 | -2.4 |
| O | BEEHIVE INT'L | 2- 18 | 14 | - 1/2 | -3.4 |
| A | BOLT,BERANEK & NEW | 8- 25 | 19 1/4 | +1 1/2 | +8.4 |
| N | BUNKER RAMO | 17- 54 | 53 3/4 | - 1/4 | -0.4 |
| O | CAMBEX CORP | 1- 8 | 8 3/8 | - 1/2 | -7.2 |
| N | CENTRONICS DATA COMP | 11- 55 | 12 3/8 | - 1/4 | -1.9 |
| A | CETEC CORP | 3- 8 | 6 5/8 | - 3/8 | -5.3 |
| O | COMPUTER DEVICES INC | 5- 10 | 7 | + 1/8 | +1.8 |
| O | COGNITRONICS | 1- 11 | 9 1/2 | - 1/8 | -1.2 |
| O | COMPUTER COMMUN. | 2- 10 | 1 1/2 | - 3/8 | -22.6 |
| O | COMPUTER CONSOLES | 4- 37 | 28 1/2 | -1 | -3.2 |
| O | COMPUTER TRANSCEIVER | 1- 8 | 7 5/8 | - 1/2 | -6.1 |
| N | COMPUTERVISION CORP | 12- 48 | 38 | -3 | -7.1 |
| N | CONRAC CORP | 13- 27 | 24 | - 1/4 | -1.0 |

| EXCH | | 1980-81 RANGE (1) | CLOSE JUN 30 1981 | WEEK NET CHNGE | WEEK PCT CHNGE |
|---|---|---|---|---|---|
| A | DATA ACCESS SYSTEMS | 6- 23 | 7 1/2 | -6 7/8 | -47.8 |
| A | DATAPRODUCTS CORP | 11- 44 | 31 | +2 | +6.8 |
| O | DATUM INC | 2- 5 | 2 5/8 | 0 | 0.0 |
| O | DECISION DATA COMPUT | 2- 8 | 3 3/4 | - 1/8 | -3.2 |
| O | DELTA DATA SYSTEMS | 1- 4 | 3 7/8 | - 1/4 | -6.0 |
| O | DATARAM CORP | 6- 37 | 8 1/4 | - 3/8 | -3.8 |
| N | ELECTRONIC M & M | 3- 9 | 5 | - 1/8 | -2.4 |
| O | EVANS & SUTHERLAND | 7- 38 | 31 | -2 | -8.0 |
| O | FABRI-TEK | 1- 8 | 5 5/8 | + 7/8 | +18.4 |
| O | GENERAL COMPUTER SYS | 1- 12 | 8 1/4 | 0 | 0.0 |
| O | GEN'L DATA COMM IND | 8- 22 | 13 3/8 | + 1/8 | +0.8 |
| O | GENERAL TERMINAL CP | 1- 4 | 1 7/8 | + 1/8 | +7.1 |
| N | HAZELTINE CORP | 12- 33 | 28 1/4 | + 1/4 | +0.8 |
| O | INFORMATION INTL INC | 8- 17 | 14 | + 1/4 | +1.8 |
| O | INTEL CORP | 23- 50 | 38 | + 3/4 | +2.1 |
| A | LUNDY ELECTRONICS | 4- 17 | 13 7/8 | - 5/8 | -4.3 |
| O | MSI DATA CORP | 5- 27 | 21 5/8 | -1 1/8 | -4.9 |
| N | MEMOREX | 10- 34 | 10 3/4 | -1 | -8.5 |
| O | NETWORK SYSTEMS CORP | 14- 25 | 21 3/8 | + 1/2 | +2.3 |
| O | OMEX | 2- 12 | 12 | 0 | 0.0 |
| A | PARADYNE CORP | 9- 50 | 41 1/4 | - 3/4 | -1.7 |
| A | PENRIL CORP | 8- 17 | 13 | - 3/4 | -5.4 |
| O | RANTEK CORP | 10- 23 | 13 1/8 | + 1/8 | +0.9 |
| O | RECOGNITION EQUIP | 9- 21 | 12 | -1 1/8 | -8.5 |
| O | SCAN DATA | 1- 5 | 2 | 0 | 0.0 |
| N | STORAGE TECHNOLOGY | 12- 35 | 31 1/2 | + 3/8 | +1.2 |
| O | SYKES DATATRONICS | 9- 25 | 24 1/2 | + 1/2 | +2.0 |
| O | T BAR INC | 14- 24 | 15 5/8 | 0 | 0.0 |
| A | TEC INC | 3- 8 | 5 1/8 | 0 | 0.0 |
| N | TEKTRONIX INC | 42- 70 | 55 | -2 3/8 | -4.1 |
| N | TELEX | 3- 9 | 7 1/4 | - 3/8 | -4.9 |
| O | TESDATA SYSTEMS CP | 8- 28 | 10 | + 1/8 | +1.2 |
| A | TIMEPLEX INC | 9- 22 | 14 | - 3/4 | -3.0 |
| O | WILTEK INC | 1- 3 | 2 3/8 | - 1/8 | -5.0 |
| | **SUPPLIES & ACCESSORIES** | | | | |
| A | AMERICAN BUS PRODS | 8- 17 | 18 | - 1/2 | -3.0 |
| O | BALTIMORE BUS FORMS | 1- 2 | 1 1/4 | 0 | 0.0 |
| N | BARRY WRIGHT | 8- 23 | 21 | - 3/4 | -3.4 |
| O | CYBERNETICS INC | 1- 2 | 1 1/8 | 0 | 0.0 |
| N | DUPLEX PRODUCTS INC | 11- 18 | 14 7/8 | - 1/8 | -0.8 |
| N | ENNIS BUS. FORMS | 13- 21 | 20 1/2 | + 5/8 | +3.1 |
| N | 3M COMPANY | 48- 85 | 57 1/2 | - 1/8 | -0.2 |
| O | MOORE CORP LTD | 27- 38 | 38 1/2 | -1 | -2.8 |
| N | NASHUA CORP | 20- 35 | 21 5/8 | - 7/8 | -3.8 |
| O | STANDARD REGISTER | 22- 38 | 34 1/4 | 0 | 0.0 |
| A | TAB PRODUCTS CO | 8- 30 | 28 1/2 | + 1/4 | +0.8 |
| N | WALLACE BUS FORMS | 12- 31 | 31 | +2 7/8 | +10.2 |

EXCH: N=NEW YORK; A=AMERICAN; P=PHIL-BALT-WASH
L=NATIONAL; M=MIDWEST; O=OVER-THE-COUNTER
O-T-C PRICES ARE BID PRICES AS OF 3 P.M. OR LAST BID
(1) TO NEAREST DOLLAR

# EASIER.



One of the latest innovations from the Memorex® Communications Group, the 2078 Display Station, serves as a good example of how one company works to respond to and anticipate the demands of its many marketplaces. Demands for products that perform faster, last longer, are built smaller and smarter. But most important today perhaps, for products that make life and work easier on the people using them.

To that last point, the 2078 is particularly noteworthy. And human engineering is the key, with features designed-in to make the operator's job less fatiguing and the operator more comfortable and productive. The non-glare screen reduces eye strain, while the tilt-screen design allows positioning for easy readability. We've included a line and column indicator, a status line, a switch-selectable unprotected field indicator, a choice of keyboard layouts and other features that make the 2078 a much easier display station to use.

But it is much more efficient and flexible as well. The detachable monitor can be located on a shelf or bookstand to conserve space and allow use by more than one operator. The 2078 incorporates an automatic dimming feature to preserve the quality of the display. The unit also generates less heat and uses less power. And teamed with the small, smart-looking 2076 Remote Cluster Controller, which can be conveniently located separately, the 2078 delivers more configuration flexibility.

The 2078 Display Station is, of course, just one expression of excellence from our Communications Group. But it certainly helps explain why we're so proud of our twenty years of making better products for the tough, rapidly changing marketplaces of high technology. And we look forward to the next twenty years, during which time we'll be working harder than ever to make things easier.

**MEMOREX**

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